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# DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1991

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# HEARINGS

BEFORE A

## SUBCOMMITTEE OF THE
## COMMITTEE ON APPROPRIATIONS
## HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

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[1] Resigned Committee, May 16, 1990.
[2] Elected to Committee May 24, 1990

# DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1991

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TUESDAY, MARCH 20, 1990.

## AIRCRAFT PROCUREMENT, ARMY

### WITNESSES

**BRIGADIER GENERAL MALCOLM O'NEILL, ASSISTANT DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION, DEPARTMENT OF THE ARMY**

**LIEUTENANT COLONEL COLBERT GAUTREAUX, CHIEF, AVIATION BRANCH, MANEUVER SYSTEMS DIRECTORATE, DEPARTMENT OF THE ARMY**

### INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon the Committee considers the $1,583,200,000 budget request for Aircraft Procurement, Army. The budget is less than half of the fiscal year 1990 appropriation, largely reflecting the termination of the Apache and Army Helicopter Improvement Program. The principal witness is Brigadier General Malcolm O'Neill, Assistant Deputy for Systems Management, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition. General O'Neill, we welcome you in your first appearance before the Committee. Your prepared statement will be made a part of the record. Please summarize it at this time and then we will proceed to questions.

### SUMMARY STATEMENT OF GENERAL O'NEILL

General O'NEILL. Yes, sir.

I have provided a statement for the record and I would like to make a short summary statement. I want to thank you, Mr. Chairman, for the pleasure of being here today to talk to you about the Army aviation procurement appropriation. I would like to begin by introducing again Lieutenant Colonel Colbert Gautreaux. He is the Chief of the Aviation Branch of the new Systems Directorate in the Office of the Assistant Secretary of the Army for R&D. His boss, Colonel Brad Brown, is sitting behind Colbert and is also here to assist if required. I would-like now to summarize the content of the aviation procurement appropriation from the Army standpoint.

The guideline for aviation procurement continues to be the Army Aviation Modernization Plan which is presently being revised to accommodate current fiscal constraints and the new strategic environment. The counterpiece of the modernization plan remains the Light Helicopter or LH now in a demonstration/validation phase, planned for entry to full-scale development in early fiscal year 1991. The AH-64A Apache buy will be complete in fiscal year 1990 for a total force of 40 attack battalions. The OH-58D Kiowa Warrior procurement has been terminated in fiscal year 1990. In fiscal year 1991, resources are requested for arming of the aircraft.

The UH-60L Black Hawk will continue in multiyear procurement, including aircraft for special operations application and continue to replace UH-1 Iroquois. The CH-47D Chinook is in the second year of the final three-year multiyear procurement, including support for special operation applications.

Funds for special operations forces aircraft for fiscal year 1991 and beyond have been transferred by OSD to CINCSOCOM's budget. The aircraft procurement Army budget for fiscal year 1991 is approximately $1.68 billion representing a $2 billion reduction over fiscal year 1990. The aviation procurement appropriation comprises 15 percent of the total Army procurement dollars in this budget request.

The Army is willing to accept termination of some procurements in order to protect the significant future payoffs afforded by RDT&E investments in Light Helicopter and Longbow Apache. The Army anticipates that presently envisioned aircraft inventories will be sufficient to satisfy emerging requirements. Retirement of obsolete aircraft will continue at a pace determined by evolving Army needs. Mr. Chairman, we appreciate very much your interest and support of these Army aviation programs. With continued support of this committee, we are confident that we can meet the goals of the Army aviation modernization plan. I am prepared to address your questions at this time.

[The statement of General O'Neill follows:]

## Statement of General Malcolm R. O'Neill

Mr. Chairman, I am Brigadier General Malcolm O'Neill, Assistant Deputy for Systems Management, Office of the Assistant Secretary of the Army for Research, Development and Acquisition. My statement will address the FY 1991 Budget, as submitted, for Army Aircraft Procurement.

This budget continues to support Army Aviation Modernization. It has been revised somewhat from the Modernization Plan which we presented to you in 1988. You will find that the revised plan is a direct result of the constrained budget and on-going Conventional Forces Europe negotiations. Our current strategy for the modernization of the Army Aviation is to continue the development of the new Light Helicopter (LH), continue procurement within affordability, modify fielded aircraft, and retire the aging fleet. Even though we will terminate procurement of some major systems, the basic fundamentals of the original plan will be adhered to:

- o Develop new helicopter (LH)
- o Limit modifications to current helicopters
- o Retire aging helicopters
- o Maintain the concept of stable funding

Of importance is the Army's capability to continue to operate on a daily basis. With this in mind, we have decided to resource those programs which keep aviation operating efficiently and safely. Under this budget we continue procurement of the UH-60L (BLACK HAWK) at 72 per year for a procurement objective of 2257. The AH-64A (APACHE) program will be terminated in FY90 with the Army's final buy of 132 for a procuement objective of 807. FY90 was the last buy of the OH-58D (KIOWA WARRIOR-formerly AHIP) with a buy of 36 for a total of 243. FY91 initiates the Armed KIOWA WARRIOR program. Special Operations Aircraft (SOA) will continue to be built and improvements to the Special Electronic Mission Aircraft (SEMA) will continue. Based on an OSD program budget decision in FY89, all funding resource management functions will be transferred to Special Operations Command in FY91. Development of the Light Helicopter (LH) Program will continue for the engine, mission equipment package and airframe. Necessary safety and mission essential modifications will be added to the fleet to protect our investment. We will continue the retirement of obsolete aircraft.

In the Army's Biennial Budget for FY90-91 we requested $3.4 billion in FY91 for aviation procurement. This was 22 percent the procurement account. The revised request for FY91 is $1.6 billion. This new request is 15 percent of the Army procurement.

(CHART 1)
AIRCRAFT PROCUREMENT, ARMY
($ IN MILLIONS)

| BUDGET ACTIVITY | FY89 | FY90 | FY91 |
|---|---|---|---|
| 1-AIRCRAFT | 1409.5 | 1912.9 | 687.6 |
| 2-MODIFICATION OF AIRCRAFT | 773.7 | 1045.3 | 624.7 |
| 3-SPARES AND REPAIR PARTS | 547.3 | 534.1 | 0.0 |
| 4-SUPPORT AND FACILITIES | 124.7 | 223.1 | 270.9 |
| APPROPRIATION TOTAL | 2855.2 | 3715.5 | 1583.2 |

I will address the requested funding by major item under each of the four budget activities.

Activity 1, Aircraft, provides for the procurement and manufacture of airplanes, helicopters and their associated equipment and training devices. Major FY91 buys will be:

FUNDING ($ IN MILLIONS)

| | FY89 | | FY90 | | FY91 | |
|---|---|---|---|---|---|---|
| SYSTEM | $ | QTY | $ | QTY | $ | QTY |
| AH-64A APACHE ATTACK HELICOPTER | 847.7 | (72) | 1469.5 | (132) | 104.2 | (0) |
| & ADVANCE PROCUREMENT | 78.6 | | 0.0 | | 0.0 | |
| UH-60L BLACK HAWK UTILITY HELICOPTER | 205.7 | (72) | 203.4 | (72) | 272.1 | (72) |
| & ADVANCE PROCUREMENT | 215.5 | | 178.2 | | 197.2 | |
| RC-12K RECON AIRPLANE | 62.0 | (6) | 52.0 | (4) | 87.4 | (5) |
| GRISLY HUNTER | | | 9.8 | (1) | 10.4 | (1) |

I will address each of these major buys under Activity 1 separately.

The Army requires a formidable tank killing capability to defeat modern threat armor, day or night, and in adverse weather. The AH-64A has been designed to provide this capability as the Army's primary anti-armor attack helicopter.

### AH-64A APACHE HELICOPTER

- o Single rotor, two place Advanced Attack Helicopter.
- o Primary armament - HELLFIRE Missile.
- o Additional armament - 30mm Gun and Hydra 70 Rockets.
- o Eighteen battalions fielded (one to National Guard).
- o Procurement goal - 807 aircraft/40 battalions (12 to ARNG; 2 to Army Reserves).

| | FUNDING ($ IN MILLIONS) | | |
|---|---|---|---|
| | FY89 | FY90 | FY91 |
| PROCUREMENT | 847.7 | 1469.5 | 104.2 |
| ADVANCE PROCUREMENT | 78.6 | 0.0 | 0.0 |
| INITIAL SPARES | 76.6 | 66.2 | 0.0 |
| PROCUREMENT COST | | | |
| QUANTITY | 72 | 132 | 0 |

FY89 Procurement: Eighth production year. Buys 72 AH-64As and 2 Combat Mission Simulators (CMS).

FY90 Procurement: Buys 132 AH-64As and 4 Cockpit Weapons and Emergency Procedure Trainers (CWEPT). This procurement terminates production for the U.S. Army.

FY91 Procurement: Funds are required for system program management to accept production aircraft and close out costs for transfer of depot level activities to the Army's facilities.

The Army's primary tactical lift helicopter is the UH-60L BLACK HAWK. With missions of troop assault, resupply of troops in combat, command and control, and aeromedical evacuation, its greatly enhanced survivability plus significant technological reliability, availability and maintainability improvements give it a staying power never before achieved in a utility helicopter.

- o Over 1000 delivered through February 1990.

### UH-60L BLACK HAWK HELICOPTER

- o Twin engine, single rotor utility tactical transport helicopter.
- o With a crew of 3, carries 11 combat equipped troops or equivalent cargo load.
- o Designed to operate in all intensities of conflict in all expected geographical environments.
- o Highly praised by field commanders and troops.

| | FUNDING ($ IN MILLIONS) | | |
|---|---|---|---|
| | FY89 | FY90 | FY91 |
| PROGRAM | 205.7 | 203.4 | 272.1 |
| ADVANCE PROCUREMENT | 215.5 | 178.2 | 197.2 |
| INITIAL SPARES | 48.9 | 49.1 | 0.0 |
| PROCUREMENT COST | 470.1 | 430.7 | 469.3 |
| QUANTITY | 72 | 72 | 72 |

FY89 Procurement: Continues FY88-91 multiyear procurement contract. Thirteenth year of production, begins FY89-93 multiyear engine procurement. EMI fixes on-going.

FY90 Procurement: Procures 72 aircraft.

FY91 Procurement: Procures 72 aircraft. Completes FY88-91 multiyear.

The Special Electronic Mission Aircraft fleet provides a mix of reconnaissance, surveillance and target acquisition sensors platform in support of the Corps Commander. The RC-12K GUARDRAIL Common/Sensor (GR/CS) and Grisly Hunter are highlighted below.

### RC-12K GUARDRAIL COMMON/SENSOR

- o GR/CS is an airborne communications and non-communications emitter location system.

- o GR/CS is the first aviation fielded system that provides deep battle weapons critical targeting accuracy.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROGRAM | 62.0 | 52.0 | 87.4 |
| INITIAL SPARES | 11.5 | 22.0 | 0.0 |
| PROCUREMENT COST | 73.5 | 74.0 | 87.4 |
| QUANTITY | 6 | 4 | 5 |

FY89 Procurement: Funds six RC-12Ks and aircraft survivability and avionics equipment packages. GR/CS maintenance trainer delivered.

FY90 Procurement: Funds four RC-12Ks and aircraft survivability and avionics equipment packages.

FY91 Procurement: Funds five RC-12Ks and aircraft survivability and avionics equipment packages.

## GRISLY HUNTER

- o An airborne day/night reconnaissance and surveillance system for low intensity conflict environments.
- o A total of six production systems will be procured on a competitive basis upon successful completion of the demonstration program.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROCUREMENT COST | | 9.8 | 10.4 |
| QUANTITY | | 1 | 1 |

Activity 2, Modifications of Aircraft, provides for modification and upgrade of aircraft and equipment procured by this approprition. Major items on this activity are:

FUNDING ($ IN MILLIONS, INCLUDING ADVANCE PROCUREMENT)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| SOF AIRCRAFT MODS | 119.6 | 326.1 | 0.0 |
| CH-47D MODS | 247.4 | 273.7 | 294.2 |
| OH-58D | 202.9 | 192.3 | 48.0 |
| OTHERS: | | | |
| OV-1 MOHAWK | 16.1 | .2 | .2 |
| RC-12D MODS | 39.2 | 42.6 | 31.6 |
| RU-21 MODS | 4.0 | 1.5 | 9.7 |
| AH-1S MODS | 28.8 | 5.8 | 8.0 |
| AH-64 MODS | 2.2 | 20.7 | 85.7 |
| OH-58 MODS | 17.3 | 23.0 | 24.7 |
| UH-1 MODS | 0.0 | 9.5 | 26.8 |
| UH-60 MODS | 33.2 | 40.4 | 83.5 |
| AIRBORNE AVIONICS | 4.5 | 0.0 | 0.0 |
| ASE MODS | 34.8 | 7.0 | 11.5 |
| AIRCRAFT 9WW MODS | 23.9 | 19.5 | 0.0 |
| TRACTOR HEAVY MODS | 0.0 | .8 | .8 |

THE KEY MODIFICATIONS WILL BE FURTHER DISCUSSED.

## SOF AVIATION MODIFICATIONS

- o Program is for 23 MH-60Ks, 51 MH-47Es and 2 Combat Mission Simulators.
- o Rollout of prototype MH-47E-December 1989/MH-60K-March 1990.
- o All MH-60Ks/MH-47Es delivered by November 1992/March 1993, respectively.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROGRAM | 69.9 | 200.2 | 0.0 |
| ADVANCE PROCUREMENT | 49.7 | 125.9 | 0.0 |
| TOTAL | 119.6 | 326.1 | 0.0 |
| QUANTITY | | | |
| MH-47E | 4 | 7 | 0 |
| MH-60K | 0 | 11 | 0 |

FY89 Procurement: Funds 4 MH-47Es, long lead for 11 MH-47Es and 11 MH-60Ks, and production line set-up for MH-60K line.

FY90 Procurement: Funds long lead for 34 MH-47Es and 11 MH-60Ks. Buys 7 MH-47Es and 11 MH-60Ks.

### CH-47D (CHINOOK) MODERNIZATION

- o Tandem rotor, twin gas turbine, medium lift helicopter.
- o Modernizes all existing helicopters (472) to "D" model configuration.
- o Improves performance, reliability, availability and maintainability.
- o Reduces vulnerability.
- o Extends fleet life past the year 2000.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROGRAM | 166.6 | 178.8 | 237.8 |
| ADVANCE PROCUREMENT | 80.8 | 94.9 | 56.4 |
| INITIAL SPARES | 36.0 | 2.1 | 0.0 |
| PROCUREMENT COST | 283.4 | 275.8 | 294.2 |
| QUANTITY | 48 | 48 | 48 |

FY89 Procurement: Eighth production year. Funds modernization of 48 CH-47Ds. Completes current multiyear. FY90-92 multiyear contract signed January 1989 for buy out of 144 aircraft.
FY90/91 Procurement: Continues modification at 48 per year.

### OH-58D KIOWA WARRIOR

- o Certified as most cost effective scout.
- o Procurement objective is 243.
- o Will be equipped with Air-to-Air Stinger (ATAS) beginning in FY91.
- o The Secretary of the Army approved armed version December 1989.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROGRAM | 169.3 | 192.3 | 48.0 |
| ADVANCE PROCUREMENT | 33.6 | 0.0 | 0.0 |
| INITIAL SPARES | 28.0 | 0.0 | 0.0 |
| PROCUREMENT COST | 230.9 | 192.3 | 48.0 |
| QUANTITY | 36 | 36 | 0 |

FY89 Procurement: Procures Lot VI. Production incorportion of ATAS begins with this Lot.
FY90 Procurement: Procures Lot VII. Starts retrofit of ATAS.

Activity 3, Spares and Repair Parts. Includes funds for initial spares to support new or modernized aircraft systems and replenishment spares to include peacetime and war reserve spares required to maintain the fleet once fielded. Funding for FY91 procurement of initial and replenishment spares has been transferred to the Army Stock Fund.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| INITIAL SPARES | 217.8 | 175.2 | 0.0 |
| REPLENISHMENT SPARES | 329.5 | 358.9 | 0.0 |
| ACTIVITY TOTAL | 547.3 | 534.1 | 0.0 |

SYSTEMS SUPPORTED BY INITIAL SPARES IN THIS BUDGET REQUEST ARE:

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| ASE | 7.2 | 17.0 | 0.0 |
| AH-64A | 78.4 | 66.3 | 0.0 |
| UH-60L | 48.9 | 49.1 | 0.0 |
| OV-1 | 0.0 | 0.0 | 0.0 |
| RC-12 | 11.5 | 20.9 | 0.0 |
| AH-1S | .9 | 5.0 | 0.0 |
| CH-47D | 36.0 | 2.1 | 0.0 |
| OH-58D | 28.0 | 0.0 | 0.0 |
| ANVIS | 1.8 | 1.8 | 0.0 |
| AGSE | 0.0 | .1 | 0.0 |
| ATAS | 2.0 | 3.6 | 0.0 |
| AVIONICS | 3.1 | 8.2 | 0.0 |

Activity 4, Support Equipment and Facilities. Funds survivability equipment, ground support equipment, avionics and production base support. Activity includes:

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| AIRCRAFT SURVIVABILITY EQUIPMENT | 49.5 | 97.7 | 107.9 |
| AVIONICS SUPPORT EQUIPMENT | 22.2 | 30.4 | 43.6 |
| COMMON GROUND EQUIPMENT | 29.5 | 45.8 | 67.9 |
| INDUSTRIAL FACILITIES | 20.4 | 22.8 | 27.8 |
| OTHER: | | | |
| WAR CONSUMABLES | 3.1 | 4.2 | 4.6 |
| AIR TRAFFIC CONTROL | 0.0 | 7.7 | 8.7 |
| SYNTHETIC FLIGHT TRAINING SYSTEM | 0.0 | 9.8 | 10.4 |
| AVIATION NON SYSTEM TRAINING DEVICES | 0.0 | 0.0 | 0.0 |
| ACTIVITY TOTAL | 124.7 | 218.4 | 270.9 |

AIRCRAFT SURVIVABILITY EQUIPMENT (ASE)

- o On-going RDTE and Procurement.
- o Coordinated, Joint Service area.
- o Tailored ASE suites for all priority aircraft.
- o Responds to emerging threats.
- o Increased mission effectiveness through increased aircraft survivability.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| WARNING DEVICES (AZ3506) TOTAL | 17.2 | 69.3 | 102.7 |
| AN/APR-39A(V)1 | | | |
| AN/APR-39A(V)2 | | | |
| AN/APR-2 | | | |
| AN/APR-48 (RFI) | | | |
| INFRARED COUNTERMEASURES (AZ3507) | 9.2 | 5.8 | 5.2 |
| AN/ALQ-144A | | | |
| RADAR COUNTERMEASURES (AZ3508) | 20.4 | 21.3 | 0.0 |
| AN/ALQ-136(V)2 | | | |
| AN/ALQ-162(V)2 | | | |
| INTERACTIVE SYSTEMS (AZ3509) | 2.7 | 1.3 | 0.0 |
| M-130 DISPENSER | | | |
| TOTAL ASE (AZ3504) | 49.5 | 97.7 | 107.9 |

AVIONICS SUPPORT EQUIPMENT

- o Continues procurement of AN/AVS-6 third generation aviators night vision imaging system (ANVIS).

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| PROCUREMENT | 22.2 | 30.4 | 43.6 |
| QUANTITY | 1429 | 2564 | 3643 |

COMMON GROUND EQUIPMENT

- o Increases readiness through better aircraft availability and shorter times to repair.
- o Enhances aircrew safety and survivability.
- o Provides essential equipment to maintain Army aircraft fleet.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| ITEMS LESS THAN $2M | 1.0 | 0.0 | 0.0 |
| AIRFIELD SUPPORT EQUIPMENT | 5.5 | 10.8 | 19.4 |
| AVIATION LIFE SUPPORT EQUIPMENT | 1.4 | 2.9 | 10.9 |
| SETS, KITS & OUTFITS | 5.2 | 3.8 | 7.1 |
| AVIATION GROUND SUPPORT EQUIPMENT | 2.9 | 11.7 | 13.5 |

| | | | |
|---|---|---|---|
| POSITION LOCATOR SYSTEM | 5.5 | 10.4 | 7.1 |
| AN/PRC-112 SURVIVAL RADIO | 8.0 | 6.3 | 9.9 |
| TOTAL | 29.5 | 45.8 | 67.9 |

FY89 Procurement: Procures 1585 AN/PRC-112 radios and 114 position locator systems (PLS) for SOA.

FY90 Procurement: Buys 1195 PRC-112s, 171 PLSs, 240 HOS and 1091 flotation kits.

FY91 Procurement: Buys 3784 aircrew modular survival systems and 3284 flotation kits. Buys 1861 PRC-112s and final 135 PLS devices.

### INDUSTRIAL FACILITIES

- Provide incentives to improve contractor efficiency.
- Maintain Government owned plant and equipment.
- Establish and maintain depot repair capability.
- Expand and maintain the industrial base.

FUNDING ($ IN MILLIONS)

| | FY89 | FY90 | FY91 |
|---|---|---|---|
| VALUE ENGINEERING (VE) | 1.0 | 1.3 | 1.3 |
| PROVISION OF INDUSTRIAL FACILITIES (PIF) | 15.0 | 4.6 | 11.1 |
| DEPOT MAINTENANCE PLANT EQUIPMENT (DMPE) | 4.5 | 16.9 | 15.4 |
| TOTAL | 20.4 | 22.8 | 27.8 |

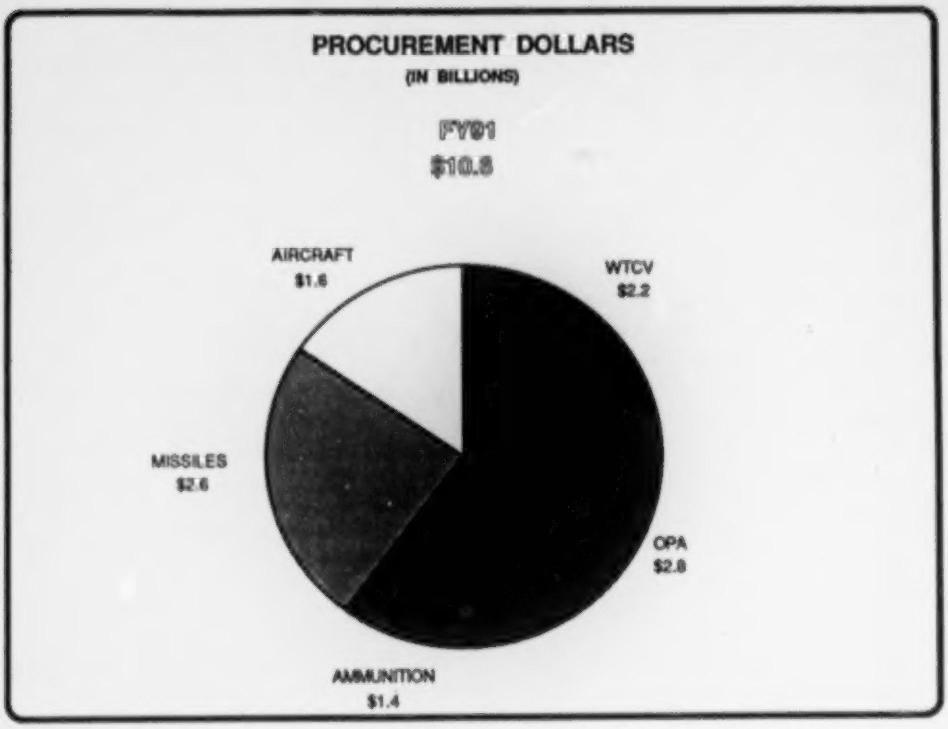
FY89: VE is providing VE support for the APACHE helicopter and for VE training of Government personnel. PIF funding is for the rehabilitation of Government owned facilities at the Stratford Army Engine Plant as well as for Government owned equipment for the APACHE helicopter and for the T700 engine DMPE provides for test equipment for diagnostics and repair of Target Acquisition Designation Sight (TADS) and Pilot Night Vision Sensor (PNVS) subsystem of the APACHE; and of the COBRA helicopter.

FY90: VE provides support for helicopter systems and for VE training of Governmental personnel. PIF funding is for the rehabilitation of Government owned facilities at the Stratford Army Engine Plant as well as upgrading Government owned equipment for the T700 engine. DMPE provides for test equipment for diagnostics and repair of TADS and PNVS subsystems of the APACHE; test stations and fixtures for the APACHE; test equipment for the Army OH-58D KIOWA WARRIOR; and test stations/sets for advanced QUICKLOOK.

FY91: VE provides for helicopter systems and for VE training of Government personnel. PIF funding is for the rehabilitation of Government owned facilities at the Stratford Army Engine Plant as well as upgrading Government owned equipment for the T700 engine. DMPE provides for test equipment for diagnostics and repair of TADS and PNVS subsystems of the APACHE; test stations and fixtures for the APACHE; test stations and sets for advanced QUICKLOOK, KIOWA WARRIOR, and GUARDRAIL Common Sensor.

Mr. Chairman, we recognize the austere funding environment that faces us and we continue to exercise fiscal restraint and management policies that are consistent with the Army Aviation Modernization Plan's stable funding concept. Adhering to these principles we have taken maximum advantage of the savings inherent in multiyear contracting. Examples include the current BLACK HAWK multiyear which will result in $139.8 million in savings over annual contracting.

We appreciate very much your interest in and support of these Army Aviation programs. With continued support of this Committee, we are confident that we can meet the goals of the Army Aviation Modernization Plan. This concludes my prepared statement.



Breaking this out by Budget Activity provides the following Display.

CHART 1

## FUTURE PROCUREMENT OF APACHE AND AHIP

Mr. **MURTHA**. Let's talk about the AHIP and Apache.

The fiscal year 1990 Defense Appropriations Act required the Secretary of Defense to review the requirements for Apache and AHIP helicopters and report to the Committee on Appropriations by April 1, 1990.

What is the status of that review?

General **O'NEILL**. The review has been completed. The reporting date for that report is in the hands of the Secretary at this time and we expect it to be on Capitol Hill on the due date, on or before the due date.

Mr. **MURTHA**. Have you seen the report? Are there any changes in the Apache buy or the AHIP buy?

General **O'NEILL**. No, sir. However, we are stating in the report that the requirement for the Kiowa Warrior is 507 as opposed to our buy of 243. For affordability reasons, however, we are staying with the 243. You will see in the report that the requirement for Apaches is 807, all of which we will procure.

The requirement for Kiowa Warrior is 507 and we will procure 243, sir.

Mr. **MURTHA**. That is half the requirement?

General **O'NEILL**. Yes, sir; less than half.

Mr. **MURTHA**. Will Reserve Component units be fully equipped with Apaches and Kiowa Warriors under this plan?

General **O'NEILL**. No, sir. We are equipping Apaches by force package. Those units which are in force package 1, whether they are in the active force or Reserve Components, will be equipped with Apaches. At the present time, there are no plans to equip the Reserve components with Kiowa Warriors until the LH, the light helicopter, is fielded in the Active components. As this fielding occurs, Kiowa Warriors will go to lesser priority active units and then eventually to the Reserve Components.

### HELICOPTER PRODUCTION BASE

Mr. **MURTHA**. Are you concerned about the domestic helicopter production and mobilization base resulting from the termination of these programs prior to production of LHX?

General **O'NEILL**. We don't anticipate an impact because of the fact that although the buy is terminated in 1990, the production of the Apaches will continue through 1993. We have just sold 8 Apaches to Israel. That will carry the production of the Apaches into calendar 1994. In calendar 1994, we anticipate the production or the reconfiguring, excuse me, of the Apaches for the Longbow Fire and Forget active missile system to continue on the Apache line and that production will continue until approximately 1997. At such time, we will be within a very few months of initiating production of the Light Helicopter.

## AH-64 APACHE READINESS

Mr. **MURTHA**. Let's talk about Apache readiness.

We understand the Army goal is to have 70 percent of the aircraft in Apache combat units "fully mission capable."

Is this correct?

General O'Neill. Yes, sir.

Mr. Murtha. What is the current fully mission capable rate for Apache combat units?

General O'Neill. On the average, approximately 50 percent.

Mr. Murtha. What was the fully mission capable rate for the Apache just before the storm damage at Fort Hood last year and what have been the monthly rates since then?

General O'Neill. Sir, the rate just before the storm damage of last year was approximately 50 percent fully mission capable. After the storm damage, of course, that rate dropped. I will have to get you the monthly status numbers.

[The information follows:]

The Fully Mission Capable (FMC) rate for the APACHE, just before the May 1989 storm, for April 1989 was 56 percent. The monthly rates are as follows:

| | *Percent* |
|---|---|
| June | 50 |
| July [1] | 41 |
| August [1] | 44 |
| September [2] | 22 |
| October | 36 |
| November | 40 |
| December [3] | 42 |
| January | 49 |
| February | 56 |

[1] Impact of the May 1989 storm damage began to be felt.

[2] Safety of Flight (SOF) for the 30mm gun azimuth gear box caused the partially mission capable rates to increase from August 1989 of 11% to 37%, resulting in a reduction in FMC rates.

[3] SOF for the mast mounted nut caused an increase in maintenance downtime for inspections resulting in a lower than expected FMC rate.

Mr. Murtha. As a result of Apache reliability problems, the Army established "Apache Action Teams."

Describe how these teams work and what they have found.

General O'Neill. Sir, the Apache Action Team is composed of U.S. Government personnel and representatives of the prime contractor, McDonnell-Douglas Helicopter Company, and some of their key subcontractors, such as Martin Marietta, which is the prime for the target acquisition and designation sight/pilot Night Vision Sensor, TADS/PNVS.

The AAT meets monthly. It reports to a general officer level steering committee which includes the President of McDonnell-Douglas Helicopter. The AAT has identified 164 items which need to be worked to get the reliability of the Helicopter up. We have presently cleared 94 of the issues with corrections in the works for the rest. The good news from the Army standpoint is that the cost of a large portion of these fixes has been borne by McDonnell Helicopter. They are concerned about the representation of their aircraft so they are bearing most of the costs of these fixes.

Mr. Murtha. These teams have been in existence for about a year.

Do you consider that progress?

General O'Neill. Sir, I think the—there has been progress.

You will not see the progress reflected yet on the monthly readiness reports.

Mr. Murtha. Well, if you are still at 50 percent, you admit there is no progress being shown.

Are you then saying the progress is the fact that you have identified 165 parts that need to be redone and that McDonnell-Douglas is bearing the responsibility and the cost of repairing and changing these parts?

General O'NEILL. Sir, the 164 issues include parts and other issues that require fixing. I think the progress that has been made thus far has enabled us to look more closely at what are the most significant drivers in the readiness, such as the target acquisition and designation sight, the TADS. It is responsible for a major portion of that 20 percent difference between requirement and our present status. The Assistant Secretary is aware of the fact that although the action team has been in existence for a year, the statistics seem to be where they were at about this time last year. He has asked Colonel Brown, from my office to go to Saint Louis next week and look into this matter to see if there is some action that he could take to move this readiness rate up more rapidly.

Mr. MURTHA. Well, it seems to me that there is no real urgency here on the part of the Army. It seems like you are treating this as if it is not an important shortfall.

If you say it is a 70 percent fully mission capable requirement, a fifty percent rate is clearly not acceptable. You felt strongly enough about the shortfall to establish an action team. But what happened in the year that the team has studied the problem, General?

General O'NEILL. During the year we have been studying the problem and trying to fix the problem, there have been a number of situations that have occurred; the weather damage was significant and did cause a large number of long-term readiness problems that have been on our books for some time. A number of safety-of-flight messages go out, very often they will ground the fleet. When you ground the fleet, it becomes non-mission capable. That has also added to the statistical poor showing of the aircraft.

I think the aircraft is in a better posture today than it was a year ago. It is not yet capable of reaching the 70 percent requirement and that is why we are taking the actions we are.

Mr. MURTHA. What is the fundamental problem here?

General O'NEILL. Sir, there are two problems. The first problem is the part that you need to fix the aircraft. The second problem is the skill and time required to correctly diagnose the fault and insert the proper part.

Mr. MURTHA. It just seems like your attitude is that because it is a peacetime atmosphere readiness is only 50 percent fully mission capable, heck, we will fix it next month.

There doesn't seem to be an urgency on the part of the Army to solve what you consider to be the fundamental problems.

General O'NEILL. Sir, I can't overemphasize the fact that at all levels of the Army we consider this a major problem. The aviation people—let me start from the top. The Chief of Staff of the Army has reviewed this situation. The Vice Chief of Staff of the Army has a General Officer Steering Committee with a special action team looking at this readiness problem. I mentioned that Mr. Conver, who has been on board in the Army for two weeks, has identified this as one of his key priority problem areas. He identified it the first time he was briefed by the Program Executive Officer for Aviation and he saw the readiness curves. He certainly has my attention and my people are making this a top priority because we realize that 20 percent means 20 aircraft out of every 100 which could be flying and fighting.

### MAINTENANCE READINESS FLOATS

Mr. **Murtha**. I would hate to see it if it were a lower priority. You haven't increased the mission-capable rate at all.

I realize it is a complicated system. What about the quantity you are buying? Has that made any difference?

In other words, with fewer helicopters, are you cutting back on readiness and maintenance floats?

General **O'Neill**. Sir, we don't feel that the number of helicopters is strongly related to readiness. At the present time, since we have only fielded 18 battalions and we have over 500 aircraft, we have a number of spare aircraft which we hold in a float status. But our policy right now for the float of these aircraft is that you have to be going in for a major maintenance, a depot maintenance activity that is going to take your aircraft off the shelf for a long time before we allow the transfer of a float. Now, that isn't the same policy as we use with regard to other systems and we are studying the potential application of float assets; in other words, assets that have not yet been committed to a battalion as a way potentially to get at the readiness problem, but we haven't done it yet.

### OPERATION JUST CAUSE

Mr. **Murtha**. We had a major operation, Just Cause. What was the reliability record in Operation Just Cause?

General **O'Neill**. Sir, the reliability record for Just Cause was excellent. The fully mission capable rate, I think—I am looking to my left, but I think it reached the requirement and the mission capable rate was 76 percent, which meant that we were able to keep the Apaches in fighting fettle throughout Just Cause.

Mr. **Murtha**. You reached a 75 percent rate?

General **O'Neill**. Mission capable, yes, sir, and the fully mission capable rate was 73 percent.

Mr. **Murtha**. Here is what Defense Week of March 5, 1990 said about the Apache in Panama:

> The Army's AH-64 Apache helicopter suffered reliability glitches on its first combat mission.

You have read this?

General **O'Neill**. Yes, sir.

Mr. **Murtha**. It goes on.

> Although they did not endanger U.S. troops, the heretofore u[illegible]osed glitches marked the first indication that, Army claims notwithstanding, not all equipment employed during the invasion was problem free.
>
> General Thurman, for example, told Members of the Senate Armed Services Committee February 8 that, "the Apache worked great". And far from simply being isolated problems in an otherwise reliable system, the Panama glitches are the latest in the series that have surfaced since the $14 million chopper was fielded in 1984.

It goes on explaining about reliability problems of the Apache.

Did you have a problem with the target acquisition system in the Apache in Panama?

General O'NEILL. To my knowledge, no, sir. It worked fine.

Mr. MURTHA. Could you comment on this article that I just read?

General O'NEILL. Sir, I think the article, if you look at the specifics, the article is correct, but if you look at the fleet of Apaches that we had in Panama, there were certainly a number of Apaches and when we talk to a readiness of 73 percent, we are suggesting that seven out of ten operational is the requirement, not ten out of ten. It is asking, for a complicated piece of equipment like Apache, it is asking too much for every system to work.

Mr. MURTHA. What was that comment?

You don't expect every system to work?

General O'NEILL. We don't expect every system to be working at all times. That is why we have what is called a readiness rate. In other words, there will be a fraction of your systems that are not mission capable.

Mr. MURTHA. It is possible that in a battle every TADS system could go down and you would still consider it highly reliable because only one system went down?

According to this article, the TADS system was down on at least one helicopter.

General O'NEILL. Yes, sir.

Mr. MURTHA. That is obviously a very serious problem, because you can't fly at night, you can't use the helicopter at night.

General O'NEILL. That helicopter would not be fully mission capable; you are absolutely right, sir. My point is that when you have a fleet of machines, it would be too costly to expect that every one of those complicated machines is going to work all the time on a mission. When we say "high availability" or "high readiness," we are talking about 70 percent. We are resourced in terms of parts and maintenance people for 70 percent reliability. We are not resourced for 100 percent reliability, sir. That would be very expensive.

Mr. MURTHA. Well, the fact that you were 50 percent fully mission capable and you have been for a year certainly doesn't say a lot for the program.

I remember complaining bitterly ten years ago about how half our aircraft were deadlined because of lack of spare parts. Here we are ten years later and one of our modern systems is still at 50 percent fully mission capable.

I understand the Government Accounting Office is completing a very critical report for the Armed Services Committee on Apache readiness. Have you seen the GAO report?

General O'NEILL. No. I can guess what the report says, and again it is a problem area, and I am acknowledging that we are 20 percent below our readiness goal.

Mr. MURTHA. What will it take to solve these problems? When are we going to see what you consider an acceptable, a 70-percent reliability rate?

General O'NEILL. Sir, I think one of the things we are going to need to do to get to 70 percent is to increase the amount of time spent on maintenance of the helicopter.

Mr. **Murtha**. One of the things you claimed when you first bought the Apache was that it was going to have less maintenance. It was supposed to be a system that was easier to maintain.

When I say "easier," I recall that it was supposed to be less maintenance cost per flying hour.

General O'**Neill**. I really can't comment at what level of consideration of maintenance the system's engineers looked when they put the Apache together. It is always the goal of designing Army equipment to make it as maintainable as you can. In this case, we have maintenance problems.

Mr. **Murtha**. Would you say it is a failure as far as maintenance goes? I mean, you are saying that you are going to have to spend a lot more man-hours in maintenance, are you not?

General O'**Neill**. Sir, I would give it a D right now. We need more maintenance man-hours. That is, either the maintainer has to spend more time each day on the aircraft or we have to get more maintainers onto the aircraft. Recently, we converted three drivers to electronics repairmen in the battalion for the Apache. So we have just broken loose out of our hide three additional people to work on the electronics which includes the TADS system.

We also have to make sure that when the Apache fails because of a simple part all you have to do is pull the part out, and plug in a new part that doesn't take three weeks to get to the Apache. We are taking actions through initiatives like the Objective Supply System—OSS, which is a special supply, expedited supply system which allows the unit to automatically contact the depot for ordering a part, rather than going through the chain of logistics command to get that request approved and then off to the depot.

Mr. **Murtha**. That is in a wartime situation or that is now?

General O'**Neill**. That is right now, sir. We are just putting that in. It started as an experiment, I think, last summer, and it is now the way they do business.

Mr. **Murtha**. I didn't hear you give me an answer to when you would be up to 70 percent.

General O'**Neill**. I think I would like to answer that for the record, after Colonel Brown returns from Saint Louis the end of next week.

[The information follows:]

The worldwide APACHE readiness rates have recovered from the effects of the May 1989 storms and the extensive maintenance manhours required to perform three safety-of-flight inspections during that period. Ninety-four of the 110 damaged APACHEs have been repaired. The remainder are currently in a depot maintenance facility and will be returned to the operational fleet by the end of the year.

The worldwide readiness rates of the last three months are comparable with the averages of the year prior to the storm. The April 1990 Fully Mission Capable (FMC) rate is 59 percent versus a goal of 70 percent and a Mission Capable (MC) rate is 70 percent versus a goal of 75 percent.

The improvements in the readiness rates of the five battalions in USAREUR have exceeded the Army goals since February. The factors leading to these better rates are viewed as proving out the fixes that are expected to steadily increase worldwide readiness rates. The fixes include solutions to materiel design and reliability problems; more effective fault isolation techniques; better management of available maintenance manhours; an expedited supply system; and stronger command emphasis. Among these fixes, personnel strength has been found to be a key in achieving readiness goals when the other factors are kept at satisfactory levels. the USAREUR units, as a result of their forward deployed priority, are near full strength while most of the units in the continental United States are nearer 90 percent. Additionally, the USAREUR units are supported by additional five-man civilian contract teams as an interim measure until each battalion receives a 35-man increase in strength. Eighteen are aircraft maintenance personnel.

The application of the fixes on the production line, to fielded aircraft and in the training base, are progressing well and are expected to be largely complete in two years. The overall effect is expected to be a steady rise in worldwide readiness rates to meet the Army goals.

Worldwide APACHE readiness rates are expected to rise steadily during the next two years as the fixes mentioned above are implemented. An analytical treatment of current readiness experience and judgment suggest that worldwide rates will reach MC goals in six months (approximately 2nd Quarter FY 1991) and FMC goals in 12–18 months (approximately 4th Quarter FY 1991).

Several recent extended field exercises bear out that APACHE Attack Helicopter Battalions perform well when allowed to focus on their primary flying and maintenance missions.

| | | Hours | FMC | MC |
|---|---|---|---|---|
| Just Cause | 20 Dec 89 to 9 Jan 90 | 238 | 76.0 | 81.0 |
| REFORGER 90 | 15 Jan to 29 Jan 90 | 2,670 | 74.0 | 84.7 |
| Hunter-Liggett [1] | Jan to Apr 90 | 1,516 | 84.0 | 87.7 |
| Willing Eagle [2] | 6–24 May 90 | 305 | 89.0 | 98.0 |

[1] 1/101 Deployment.

[2] Eight AH–64 aircraft deployment.

## ARMED AHIP

Mr. MURTHA. Mr. McDade?

Mr. McDADE. Thank you, Mr. Chairman.

In January, the Army informed the Committee that it had decided to fully arm all 243 aircraft in the AHIP fleet. The budget includes $25.8 million in fiscal year 1991 and $19.4 million in fiscal year 1992 for research and development on armed AHIP.

You are familiar with those numbers?

General O'NEILL. Yes, sir.

Mr. McDADE. Why do you need research and development when you have already armed 15 AHIPs several years ago and they have already been deployed?

General O'NEILL. The Prime Chance aircraft, which are the ones that were put together several years ago for special applications, those aircraft were not produced on an assembly line, on a production line.

Those aircraft received limited testing and evaluation of system hardware. They currently operate on a limited flight release.

The Army was willing to accept the risk for that requirement to provide 15 aircraft. The Army was not willing to then modify 230 remaining aircraft to the same configuation without integration and additional testing. The R&D money, sir, is required for engineering, tool design prototypes, testing and integration. The Prime Chance aircraft are not integrated. They have individual weapon systems with individual controls.

The armed Kiowa Warrior will have an integrated weapons suite qualified to the full flight envelope. It will be produced on an assembly production line that we can validate and then we can produce the next 230-odd helicopters at very little risk.

So that is the difference between the Prime Chance 15 and the research and development we are doing now for the fully integrated armed Kiowa Warrior.

Mr. McDade. How long did it take to modify the Prime Chance AHIPs?

General O'Neill. Sir, can I get back to you on that one?

[The information follows:]

The total procurement cycle from go-ahead was approximately eight months. The first aircraft was delivered in 100 days and the last (15th) aircraft five months later with the contractor working three shifts per day, seven days per week. This effort received the highest priority of the Army Aviation Systems Command (AVSCOM) and the Army Helicopter Improvement Program Project Management Office.

### ARMED AHIP RESEARCH AND DEVELOPMENT

Mr. McDade. What R&D funding is being used in fiscal year 1990 for armed AHIP?

General O'Neill. In fiscal year 1990, sir, there are zero RDT&E dollars.

Mr. McDade. What is specifically going to be accomplished with the R&D funding in fiscal years 1991 and 1992?

Tell us what the milestones in the R&D program are, General.

General O'Neill. Sir, the milestones in 1991 are to complete prototypes for the armed OH-58D, then accomplish qualification in first quarter 1991. We hope to complete qualifications in the third quarter of 1991. We will complete force development test and evaluation in second quarter 1992, with delivery in third quarter 1992, but that is not with R&D money.

Mr. McDade. What did you say?

General O'Neill. I said we will begin delivery in third quarter 1992, but that is retrofit, production money, not R&D money.

Mr. McDade. We recently received a reprogramming for $9.9 million to immediately arm six AHIPs for the Eighteenth Airborne Corps. It seems to us that it is kind of quizzical to be asked to approve this proposal when the development and testing that you have described hasn't even started. Why are you sending over a reprogramming to do something when you haven't even begun doing the testing?

General O'Neill. I think the rationale for the six aircraft that you are talking about is the same rationale we used to justify the fifteen aircraft for Prime Chance. It is a similar, urgent requirement from the Commander of the Eighteenth Corps. The mission that we are looking at is what he calls forced entry, and he needs those aircraft immediately. The 15 aircraft that are established right now for the Prime Chance Mission are not available to him for any other use. The six aircraft that he is asking for will be similar to the ones coming off the production line, as you were concerned about, but they are not production line-armed Kiowa Warriors. They will be built off line and provided to the Commander of the Eighteenth Airborne Corps much like the Prime Chance aircraft.

Mr. McDade. Do you worry about concurrency here?

General O'Neill. Yes, sir.

Mr. McDade. How big a risk is it?

General O'NEILL. The risk is low, very manageable. There is concurrency in this program, you are absolutely right, and it has been evaluated in SARDA.

We feel we have a strategy though that we will be able to provide a fleet of armed helicopters, AHIP helicopters at a good cost to a number of 243 and at the same time we are being able to react to the needs, the near-term needs of the CINCs.

### DEPLOYABILITY HELICOPTERS

Mr. McDADE. Tell us what the difference is between these six and the other armed AHIPs.

What is the difference, specifically?

General O'NEILL. Yes, sir.

The specific difference is that these six are in the configuration which makes them highly deployable. They have a folding rear stabilizer on the back that folds for packaging into a C–130 aircraft. As on all OH–58s, the rotor blade folds back so you can package them more compactly into an aircraft. The skid adjusts in height so that you can put the helicopter down about two feet to get it closer to the floor of an aircraft and the mast mounted sight can be quickly removed so it can slide in.

All of these processes are very rapidly reversible, like in about eight minutes, so you can get the thing off of C–130 aircraft and have it ready to fly.

The rest of the armed Kiowa Warriors will be provisioned for this, but will not have the actual kits like this.

Mr. McDADE. What is the time saving—how long does it take the normal chopper to get going?

General O'NEILL. The normal chopper might take an hour. You can't package as many of the normal choppers on the C–130 aircraft, and you must remove the skids and the mast mounted sight.

You might, for example, have to take the rotor blade off. If you do that, then it is going to take you a couple of hours. It is a transportability, deployability issue, and these characteristics are characteristics we have already checked.

Mr. McDADE. You are saying you can load them faster?

General O'NEILL. Yes, you can also get more into a packaging area. The important advantage is they can be unloaded and deployed within 8–10 minutes.

Mr. McDADE. General Stiner has access to Task Force 160, aircraft and the Prime Chance aircraft for any contingency.

General O'NEILL. Yes, sir.

Mr. McDADE. So what is all this urgency with these when General Stiner already has that equipment?

General O'NEILL. Sir, General Stiner is certainly aware of what he has at his disposal. I think the key is night warfigting capability.

Mr. McDADE. What do the Prime Chance choppers do?

General O'NEILL. They have that capability, but they are not available for any other mission outside of the mission that they are targeted for right now.

Mr. McDADE. They are General Stiner's command. He has them. He calls them up when he wants them; right?

General O'Neill. No, sir.

The CINCCENT is the person who is controlling the employment of the Prime Chance assets, not the Commander of the Eighteenth Airborne Corps.

Mr. McDade. Are you saying you are getting these up because General Stiner has special needs that he can't fulfill out of the other 15 Prime Chance or the other Task Force 160 choppers?

General O'Neill. Yes, sir.

Mr. McDade. What kind of contingencies are you talking about?

General O'Neill. Sir, the only clear identification of mission that I am aware of is forced entry and I do not know the geographical area that we are concerned about and I am not aware of the threat that we are concerned about. I have the CINC's need and I am fulfilling a need.

Mr. Murtha. If the gentleman will yield.

Somebody has to make the decision on which of these CINC needs are going to be met. So what is so overriding about this particular need? We have a real problem. As Mr. McDade and I said to the President this morning, you have to quit sending these reprogramming, transfer and other requests up here to us because if you want the armed services to be able to continue their missions as they did in Just Cause, you can't continually send over diversions of money from readiness items.

Here are some aircraft which you haven't been able to explain to us why they are more important, not a big item, but on the other hand, that is usually where we come up with our money. You are going to have to tell us in better terms or I don't see the need for these helicopters under these circumstances.

General O'Neill. Yes, sir. I can only pass on that. The requirements, of course, are coordinated through the operational channels of the Joint Chiefs of Staff, and when they come to us, they come to us as a requirement that we satisfy.

Mr. McDade. We understand when somebody say he wants something, General, but we have a lot of priorities.

General O'Neill. I understand, sir.

### UNIT COST OF ARMED AHIP

Mr. McDade. The unit cost of the six aircraft is $1.6 million; correct?

General O'Neill. Yes, sir.

Mr. McDade. The unit cost of all mods contemplated in the overall AHIP program is $2.7 million; correct?

General O'Neill. I am not sure of that number, sir. I don't have it off the top of my head.

Mr. McDade. It is $655 million, which is the total requirement divided by 243.

General O'Neill. Yes, sir.

Mr. McDade. The result is $2.7 million.

What accounts for the difference between $1.6 million and $2.7 million?

General O'Neill. Sir, I will have to answer that question for the record. I don't have the set of numbers that you are referring to.

[The information follows:]

The six accelerated Multipurpose Light Helicopters (MPLHs) will be fully integrated for weapons capabilities and fully provisioned to accept other non-weapon product improvement components. Some non-weapon components of the production KIOWA WARRIOR configuration will not be available for installation (production schedules) on the six accelerated aircraft, e.g. SINCGARS radios, data loader, AVR-2 Laser Warning Receiver, video recorder and upgraded transmission. Being fully provisioned, "plug-in" of the stated items of hardware is all that is necessary to bring the six accelerated aircraft to a production KIOWA WARRIOR configuration (except transmission; requires field change out). The associated costs for these hardware items are included in the total program cost, but not factored into the reprogramming cost. Additionally, costs necessary to support a complete development and production program, e.g., additional testing, data, training devices, program management, spares, etc., are not included in the reprogramming cost. Both factors account for the difference in the simplified average costs cited.

Mr. McDADE. General, you have got a $1.6 million mod coming in because General Stiner says he has to have it and you are pushing it right through. That is $1.6 million per unit, but it is $2.7 million on everything else.

There used to be a saying "If it is good enough for General Motors, it is good enough for the country."

If it is good enough for General Stiner, maybe it is good enough for everybody else.

General O'NEILL. We have to start with what condition the six helicopters are in.

Mr. McDADE. This is a hard year for us to appropriate money. It sounds as if we don't know what the requirement is and the numbers seem to be strange to us.

It took until February 27th for this reprogramming to get to us and we are informed that the decision was made in December, this very urgent decision was made last December.

Is that right?

General O'NEILL. Yes, sir.

Mr. McDADE. Why did it take until February 27th to get the reprogramming up here?

General O'NEILL. It was submitted to the DOD and it was felt appropriate that it be submitted after Mr. Cheney gave his statement on the fiscal year 1991 budget.

Mr. McDADE. So they held it back until the budget came out?

General O'NEILL. Yes, sir.

Mr. MURTHA. It wasn't that urgent; then.

General O'NEILL. Since the reprogramming was for this year, we had to take time to identify billpayers for the reprogramming and to go through the approval process.

Mr. McDADE. The budget message was in January, too, General.

General O'NEILL. Yes, sir.

Mr. McDADE. This was one day before the end of February you did this one.

General O'NEILL. After finding billpayers there was a couple of weeks, I think, of processing time within the building; yes, sir.

## PROCUREMENT BUDGET

Mr. McDADE. Something is going on in the building all the time.

The procurement budget includes $48 million for the AHIP modification program. What specifically will these funds procure? Put that in the record.

[The information follows:]

The $48 million for the KIOWA WARRIOR modification program in Fiscal Year 1991 will provide:

[In millions of dollars]

| | |
|---|---|
| Hardware[1] | 9.2 |
| Engineering Change Orders | 1.0 |
| Peculiar Ground Support Equipment (PGSE) | 2.5 |
| Data | 0.5 |
| Other[2] | 34.8 |
| Total | 48.0 |

[1] Includes armament for test aircraft.

[2] Non-recurring costs (primarily engineering and tooling), system test, training device modifications, system project management, and warranty.

### DEPLOYMENT PLAN

Mr. McDade. Put in the deployment plan for the armed AHIPs and tell us how it is different from the previous plans for fielding AHIPs.

General O'Neill. Yes, sir.

[The information follows:]

All OH-58D aircraft will convert to the armed KIOWA WARRIOR configuration. There will be no unarmed version of the OH-58D KIOWA WARRIOR. Deployment of the 243 OH-58D KIOWA WARRIORS is as follows:

| | Quantity of aircraft | Start/delivery |
|---|---|---|
| Organization: | | |
| Prototype Aircraft | 2 | 1QTRFY91. |
| 82d Airborne Division | [1] 6 | 1QTRFY91. |
| TRADOC (Ft. Rucker) | 13 | 3QTRFY91. |
| TRADOC (Ft. Eustis) | 7 | 3QTRFY91. |
| 2d Infantry Division | 6 | 1QTRFY92. |
| XVIII Airborne Corps | 10 | 2QTRFY92. |
| 82d Airborne Division | [1] 18 | 2QTRFY92. |
| XVIII Airborne Corps | [1] 32 | 3QTRFY92. |
| 82d Airborne Division | [1] 25 | 3QTRFY93. |
| 2d Infantry Division | 18 | 1QTRFY94. |
| 11th Armored Cavalry Regiment | 24 | 2QTRFY94. |
| 2d Armored Cavalry Regiment | 24 | 4QTRFY94. |
| 3rd Armored Division | 16 | 3QTRFY95. |
| 3rd Infantry Division | 16 | 4QTRFY95. |
| VII Corps (Reconnaissance) | 15 | 1QTRFY96. |
| USAREUR Float | 8 | FY94–FY96. |
| Attrition | [2] 3 | |
| Total | 243 | |

[1] MPLH $9.9 million Reprogram No. 90–05N.

[2] Three OH-58D aircraft lost to crashes to date.

The primary difference between the armed OH-58D KIOWA WARRIOR deployment plan and the previous unarmed OH-58D plan centers on the aircraft's increased capabilities (armed recon, forced entry, etc.) and the priority units that have these missions. Instead of limiting the armed OH-58D KIOWA WARRIORS to Field Artillery Aerial Observer (FAAO) units (previous plan), we are now assigning them to units that best capitalize their total capability. Additionally, the OH-58D KIOWA WARRIOR replaces two types of aircraft (AH-1, OH-58A/C) at a ratio of 25 WARRIORS versus 34 aircraft (21 AH-1s and 13 OH-58A/Cs). This allows us to field the OH-58D KIOWA WARRIOR, in limited numbers to priority units, as a near term Light Helicopter (LH) until LH fielding, and retire the older, obsolete AH-1 and OH-58A/C aircraft.

Mr. **McDade**. I have some additional questions which I will ask you to answer for the record.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

*Question*. What kind of contingencies is General Stiner likely to face in the next twelve months and how probable is it that they will occur?

Answer. The XVIII Airborne Corps, the Army's contingency Corps, must be prepared to conduct any variety of operations throughout the world on a few hours notice. These missions may vary from high intensity combat operations, to protecting the lives of U.S. citizens, to restoration of law and order in areas devastated by natural disaster. Whatever the need, the XVIII Airborne Corps is the nation's quick reaction force.

Although recent world political events have changed the perception of global high intensity conflict probability, the low to mid intensity threat evaluations remain basically the same. The XVIII Airborne Corps is the prime respondent to any type of conflict in these threat areas. It is, of course, impossible to predict with certainty, when these contingency operations may be required.

In the last 24 months, the XVIII Airborne Corps participated in three such contingency operations. Operation Golden Pheasant in 1988, was a deterrence mission accomplished by a show of force; Operation Hawkeye in 1989 provided disaster relief in the Caribbean; Operation Just Cause in Panama, required a wide variety of missions to include combat operations.

*Question*. Why did it take until February 27 for this reprogramming to reach us when the decision was made in December, especially since you claim this action to be so urgent?

Answer. The Secretary of the Army reviewed and verbally approved the below threshold reprogramming for six Multipurpose Light Helicopters (MPLHs) on December 6, 1989. On January 8, 1990, the Secretary signed a memorandum outlining his decisions. The portion of the decision memoranda pertaining to MPLH included the verbiage: "Pursuant to proper Congressional notification and response . . .". On January 18, 1990, Notification of Intent letters, which outlined the Secretary's decision to arm OH-58D's and stated a reprogramming notification letter would follow, were sent to the appropriate Congressional Committees. As stated, the reprogramming letters were sent to Congress on February 27, 1990. The period of time from January 18, 1990 until February 27, 1990, was consumed by Department of the Army/Office of the Secretary of Defense staffing on reprogramming, notification, funding, and format issues and requirements.

[Clerk's note.—End of questions submitted for the record.]

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller?

## Army Aviation Modernization Plan

Mr. **Miller**. Thank you, Mr. Chairman.

General, in the statement that you made, you are talking about the Army Aviation Modernization Plan and it has been revised as a result of ongoing negotiations on conventional forces in Europe.

Could you describe the process that you went through because of the Europe negotiations?

General O'Neill. Yes, sir. I would be happy to.

We are still in that process, of course, because the results of the CFE negotiations are not yet fully understood. It is clear that the threat has changed. It is clear that the amount of resources that will be available to modernize the Army's aviation fleet has been lowered. We had planned in the Army Modernization Plan for aviation at a level funding concept of approximately $3.5 billion to upgrade the fleet out into the 21st century. We are now down by about $2 billion in 1991. We are suggesting that we would be about $2 billion a year or so resource limited.

The focus of the Army Aviation Modernization Plan, we feel, however, needs to stay on the long-term significant technological advance offered by the light helicopter and the Apache Longbow. So our focus is going to be to continue that, those two very important programs. As you have heard, we are terminating production of the Apache at 807 and we are terminating production of the AHIP at 243.

Mr. Miller. Could I interrupt for a moment.

That was because of the Modernization Plan that you were talking about and because of the Europe negotiations. It wasn't because you were planning to terminate those programs anyway?

General O'Neill. No, sir; that was because of the evolving situation that we are in in terms of resources and the international climate. We feel that with those aviation resources as the Army force structure draws down, those resources will be capable of fulfilling our requirements.

## RETIREMENT OF AGING AIRCRAFT

Mr. Miller. You mentioned in another area about continuing the retirement of obsolete aircraft.

Do you take these out West and put them in an area where it is relatively dry or are they broken down so that some spare parts would be utilized from the aircraft?

General O'Neill. Sir, there are a number of options. One of the options that we are entertaining now with the Iroquois helicopter is foreign military sales of the equipment when it is no longer needed by the United States or sales for commercial use. The Iroquois, for example, is an obsolete aircraft for military purposes, but an excellent helicopter for limited commercial use. I think the cost we were suggesting for that helicopter of around half a million dollars or less makes it cost competitive with commercially available helicopters.

Mr. Miller. If they are obsolete for the Air Force, would they not be obsolete for civilians?

General O'Neill. Not necessarily, sir. The military requirements involve a particular temperature, altitude, climatic extremes, operations in very severe environments which might be acceptable in a commercial situation.

## Special Operations Aircraft

Mr. Miller. You mentioned in another area about special operations.

General O'Neill. Yes, sir.

Mr. Miller. Could you give us some idea of what you are talking about when you say special operations aircraft will continue to be built?

General O'Neill. Yes, sir. Special operations are those operations conducted by forces that are not conventional Army formations. The special operations are conducted by Army rangers, commandos, as it were, by special forces where we are looking at things like counterguerrilla, counterinsurgent operations; rescue operations, counterterrorist operations, and the aircraft that are utilized for those missions have to be specially tailored. They have to have the capability to carry heavier loads. They have to be able to fly at night through weather. They might have to be lower in signature than some other aircraft, and they might have to be mid-air refuelable. They might be going a long way, over unfamiliar terrain fly in from the ocean.

They might have to be launchable from a Navy ship. So they are outfitted in a different way than the conventional military aircraft to support those special kinds of operations.

Mr. Miller. You have a lot of discussion here about the type of aircraft that you buy and I am not real sure about the helicopter; probably discussing that more than anything else.

Are we eventually going to be able to apply Stealth technology to the helicopters?

General O'Neill. Yes, sir.

Thank you, General.

Thank you, Mr. Chairman.

## Grisly Hunter

Mr. Murtha. Let me ask you about Grisly Hunter.

The description of this aircraft doesn't line up with what General Thurman told us. This is an airplane that is only for his command.

Is this big on his list? Is this Grisly Hunter an airplane that he is really excited about? He never mentioned this in his testimony and in talking to him personally. When he has some interest, he usually brings it to either Mr. McDade's or my attention.

General O'Neill. I have not spoken about this with him personnally.

Mr. Murtha. Check with him and get back to the committee.

[The information follows:]

———. Additionally, SOUTHCOM requested an immediate fielding (FY 1990–91) of an initial Electro-optical System capability that would fulfill mission requirements until fielding of the first objective system, 2nd quarter FY 1992. The Army plans to fulfill the immediate requirement through deployment of a demonstration system on the airframe selected at contract award, August 1990.

## Special Operations Aircraft Modification

Mr. Murtha. With regards to special operations forces aircraft modification, I am looking at a chart here that shows a $381.4 million overrun.

What is going on in this program?

General O'Neill. Sir, could you clarify?

Mr. Murtha. Special operations forces aircraft modification. The chart is titled "Special Operations Aircraft Program Dynamics." The total cost overrun is $381.4 million.

Do you know which program we are talking about?

General O'Neill. Yes, sir.

Mr. Murtha. Get something to us on paper so that we can take a look at it and answer the remaining questions on this subject for the record.

General O'Neill. Yes, sir.

[The information follows:]

The $381.4 million should not be considered as an overrun. This figure comes from a chart used in the Special Operations Aircraft (SOA) restructuring briefing to show the program dynamics that have effected this program. They are:

Expected benefits not materializing, $55.0 million.

These were on-going programs such as 714 engine development and terrain following/terrain avoidance radar non-recurring which were expected to be funded by other programs and provided free to SOA. When these programs were either cut or cancelled the SOA requirement remained so the funding requirement shifted to SOA.

Added Efforts, $97.3 million.

Items which were identified as requirements after the program was initiated. These include follow-on prototype testing, Combat Mission Simulators and a Mission Planning Station.

Budget Cuts, $48.4 million.

These are cuts to the Fiscal Year 1988-190 Research and Development and Aircraft Procurement, Army budgets. Rationale for cuts have questioned need for cut through hard negotiating.

Cost Increases, $180.7 million.

These increases can be attributed to better estimating of Aircraft Survivability Equipment costs, and IBM claim for late Government Furnished Information and proposals received which relect the impact of the V-22 cancellation.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

### PROCUREMENT QUANTITY

*Question.* Last year, the Army changed its procurement plans for MH-47E Special Operations Forces modifications by increasing the procurement quantity from 17 to 51. The General Accounting office recently reported that no one in the Department of Defense had been able to provide any definitive mission-based justification or logical support for the procurement of these additional aircraft. They conclude that spending an additional $532 million to procure these aircraft is unwarranted because nothing has changed the original requirement of 17 MH-47E's and 41 MH-53J's to meet the medium range SOF needs. What is your response to this report?

Answer. The Department of Defense has formally nonconcurred with this finding and recommendation by the General Accounting Office. The GAO Report does not give proper consideration to events that have occurred since the original FY86/87 SOF Airlift Requirements Study, nor the intensive indepth study currently being conducted by US Special Operations Command to update all SOF requirements world wide. DOD does not agree that the need for additional medium/long range SOF vertical lift aircraft has already been met. In the FY 1990 Program review, the Deputy Secretary of Defense decided the Army would procure an additional 34

MH-47E aircraft (for a total of 51) to support the Special Operations Force, and the 41 MH-53J aircraft currently assigned to the Special Operations Force would be returned to the Air Force. Subsequently, the Deputy Secretary decided the 41 MH-53J would remain in the Special Operations Force, along with the 51 MH-47E aircraft, until the 55 CV-22A aircraft were fielded. With the decision not to procure the CV-22 aircraft, DOD is currently re-evaluating the Special Operations Force requirements through a Joint Mission Analysis.

In the interim, the Army and the Air Force will share responsibility for support of the Special Operations Force for rotary-wing missions. Based on this position, DOD considers the procurement of 34 additional MH-47E aircraft necessary to meet force lift requirements. When the Joint Mission Analysis is completed, DOD will determine how the overall Special Operations Force needs will be met and take action to satisfy those requirements.

*Question.* Has the Secretary of Defense directed the Secretary of the Army or the CINC Special Operations Command to terminate the planned procurement of the additional aircraft as recommended by GAO?

Answer. The Secretary of Defense has not directed any termination of the planned procurement of 51 MH-47E helicopter, nor is any such action planned at the present time. Upon completion of the Joint Mission Analysis (JMA) by the US Special Operations Command in FY91, DOD will determine how the overall Special Operations Force needs will be met and take action to satisfy those requirements. The current DOD plan for acquisition of MH-47E and MH-60K helicopters is flexible enough to accommodate the FY 1990 and 1991 contractual actions, while preserving options to adjust the total quantity of MH-47Es, if necessary, after the Joint Mission Analysis is completed.

*Question.* What is the contract status for long lead material relating to procurement of the additional aircraft?

Answer. The contractor has been requested to repropose the long lead effect for a quantity of 39 shipsets vice the original quantity of 34. The need for this was the program restructuring. The proposal is to be submitted by April and is forecast for award in July.

The award of the long lead effort has been delayed due to the late release of Fiscal Year (FY) 1990 funds and the program restructuring. The July award becomes very critical to allow for the over 20 month lead times for the Integrated Avionics Subsystems (IASs), terrain following/terrain avoidance (TF/TAs) and engines. The first FY 1991 aircraft is scheduled for induction in October 1991. If award of the long lead were to be delayed any further it will cause shortages to the production line and necessitate costly out-of-station installation charges.

*Question.* The SOF aircraft modification program has been restructured and stretched out since last year. Please explain the nature and causes of the changes in this program.

Answer. Since the original estimates were submitted there have been a great deal of program dynamics that have adversely impacted the affordability of the Special Operations Aircraft (SOA) program. These numerous impacts can be summarized as:

Expected benefits from other programs which did not materialize. ($55 million).

Efforts added, such as follow-on prototype testing and Combat Mission Simulators (CMS). ($97.3 million).

Budget Cuts. Over $48 million has been cut from the FY 1988–1990 program to date.

Cost Growth. Impact of V–22 cancellation on items common to SOA, a better definition of Aircraft Survivability Equipment costs and PBD 100 impact ($180.7 million). Based on this it became evident that there were insufficient funds in FY 1989 and FY 1990 for the planned buy of 16 MH–47Es. This coupled with program reprogramming made it apparent that the total SOA program needed to be re-evaluated and restructured within available resources. The restructured program, which was approved at a special In-Process Review (IPR) in January 1990, is executable through FY 1992 within available funds and still meets First Unit Equipped (FUE). The slip into FY 1993 was a result of PBD 100.

*Question.* By how much has the total cost of this program increased since 1987 and what is the current estimate of total program cost?

Answer. In 1987 the total estimate for the SOA program was $643.5 million. This program called for 23 MH–60Ks and 17 MH–47Es, had no flight simulators and completed procurement in FY 1991. The current program which resulted from the recent restructuring is estimated at $1,217.5 million. It needs to be noted that this program calls for 23 MH–60Ks and 51 MH–47Es, contains two CMSs and completes procurement in FY 1993.

*Question.* Part of the cost growth in this program results from the termination of the V–22 program. Why does cancellation of V–22 impact Special Operations Forces (SOF) aircraft modifications and what is the impact?

Answer. Detailed estimated $51.6 million impact to the SOA program caused by the V–22 cancellation follows:

[In millions of dollars]

| | Fiscal year— | | | Totals |
|---|---|---|---|---|
| | 1990 | 1991 | 1992 | |
| Contractor/Cost Element: | | | | |
| Multi-Functional Display (MFD) Development to Production Clean-Up | 0.8 | | | |
| Forward Looking Infrared (FLIR) Qualification | 0.3 | | | |
| Additonal Flight Test Multi-Mode Radar (MMR)/MFD/FLIR | | 7.0 | 2.5 | |
| Subtotal | 1.1 | 7.0 | 2.5 | 10.6 |
| Production: | | | | |
| Nonrecurring (Tooling) | 14.0 | | | |
| Recurring Production | 12.2 | 6.4 | 5.4 | |
| Integrated Avionics Subsystem (IAS) Software Support | 1.0 | 1.0 | 1.0 | |
| Subtotal | 27.2 | 7.4 | 6.4 | 41.0 |
| Total Impact to SOA | 28.3 | 14.4 | 8.9 | 51.6 |

This impact is caused by all the common items that were on both the V–22 and SOA such as: IAS, MMR and FLIR. In development there were a number of common flight tests and qualification efforts that were to be shared between the two programs. Without the V–22 all these costs must be borne by the SOA Program. In production, the CV–22 was originally scheduled to be in production prior to SOA and was to contract for Lot 1 of the MMR. This first buy includes $14 million in production tooling. With the CV–22 first slipping, then being cancelled, the tooling became the responsibility of the SOA Program. Also, with the anticipated production quantities of these various items being reduced by the V–22 numbers to a total of only the 74 for the SOA program has had an adverse impact on unit costs.

*Question.* The Army conducted an "In-Process Review" of this program in January. What decisions were made as a result of this review?

Answer. A Special Operations Aircraft (SOA) In-Process Review (IPR) was conducted on February 27, 1990. Materiel Acquisition Review Board (MARB) and IPR Members recommend approval of Type Classification of SOA as Limited Procurement, Logistics Control Code-U (LP, LCC–U), for a period of 36 months, or upon completion of the Preliminary Airworthiness Evaluation (PAE), for quantity of eleven MH–60K and eleven MH–47Es. A Milestone III IPR will be convened to consider proceeding to the Full Production phase quantities after PAE or 36 months, which ever comes first.

*Question.* The restructured program is now "unfunded" to the extent of $185.8 million. How do you expect to be able to find this amount in a time of shrinking Defense budgets?

Answer. Of the $186.2 million unfunded requirement, the Fiscal Year (FY) 1991 Aircraft Procurement, Army (APA) ($7.4 million) portion has been identified in the FY 1991 budget submission. The FY 1991 RDT&E ($11.3 million) portion has been taken as a joint Army/SOCOM project to identify funding. The FY 1992 and FY 1993 requirements have been identified to SOCOM, which is including them as requirements for their on-going budget drills prior to the Program Objective Memorandum (POM) lock. The majority of this requirement, $145 million, is for FY 1993. This aligns the program funding with the availability of airframes to convert and provide the most flexibility to the CINC.

*Question.* The Army has received cost proposals for the first 16 MH–47E aircraft from the contractor. How did this proposal differ from your own estimates and the actual funds available?

Answer. The original Boeing proposal for these 16 aircraft was $256.4 million (including production set-up). The Government estimates was $201.6 million. The actual funds available were $176.1 million.

*Question.* What is being done to bring the MH–47E costs down closer to your estimate and what are your current contract milestones?

Answer. The SOA program has initiated a number of actions to reduce the cost of both MH–47Es and MH–60Ks. These include:

Investigate Government Furnished Equipment (GFE) versus Commercial Furnished Equipment (DFE).

Delete Aircraft Survivability Equipment (ASE) control heads no longer needed with data bus.

MH–47E proposal based on procurement of all 51 aircraft.

Require and facilitate co-procurements with common vendors.

Scrub Required Operational Capability (ROC) and Contract Deliverables Requirement List (CDRL). Detailed specific items which have been scrubbed from the MH-47E proposal are:

What We Took Out:

Engineering Design/Mock-Up.—Delete On-Board Oxygen Generating System (OBOGS). Reduce mock-up hours.

System Program Management.—Delete Logistic Support Analysis (LSA) for "D". Delete standardization parts control program. Delete CS2 reporting.

Data.—10 percent reduction.

Manprint.—Reduce number of reviews.

Training.—Delete re-training.

Publications.—Delete 2nd and 3rd revisions.

GSE.—Delete GSE selection data.

Spares.—Delete OBOGS. Reduce production hours.

Currently the contractor is scheduled to submit a new proposal for 11 aircraft by April 17, 1990. The Should Cost team will update their fact finding and develop positions through April and May and negotiations will begin in June. Contract award is forecast for July.

*Question.* What is the cost and contract situation with respect to the MH-60K aircraft modifications?

Answer. A restructured MH-60K proposal for 22 aircraft, 11 in FY 1990 and 11 in FY 1991, was received on March 7, 1990. The current plan calls for Fact Finding in April, Negotiations in July and Contract Award in August.

Due to program restructure the contract will have to be negotiated for eleven aircraft in FY 1990, six in FY 1991 and five in FY 1992. The delivery schedule will not be affected, but buying in three lots versus two lots will have an adverse impact on cost. The proposed cost, while higher than budgeted, is felt to be well within negotiating range.

*Question.* Last year we were told that contractor flight testing for the MH-47E would go from January to July of this year and that government flight testing would follow from August to October. What are your currrent milestones?

Answer. Current testing milestones for the MH-47E call for contractor flight testing to begin by the end of June 1990 and continue through the end of December 1990. An expanded Government testing and qualification program will commence in December 1990. It should be noted, Government Operational pilots will be flying with the contractor during the contractor test flight phase.

*Question.* Last year we were told that contractor flight testing for the MH-60K would go from July 1990 to February 1991 and that government flight testing would follow from March to May, 1991. What are your current milestones?

Answer. Current testing milestones for the MH-60K call for contractor flight testing to begin at the end of May 1990 and continue through the end of December 1990. An expanded Government testing and qualification program will commence in June 1991. Again, Government Operational pilots will be flying with the contractor during the contractor test phase.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. Thank you gentlemen. The committee will adjourn until 10:00 o'clock Thursday.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

## FUTURE PROCUREMENT OF APACHE AND AHIP

*Question.* The fiscal year 1990 Appropriations Act required the Secretary of Defense to review the requirements for Apache and AHIP helicopters and report to the Committees of Appropriations by April 1, 1990. What changes in force structure and deployment of the Apache and AHIP are being made as a result of the premature termination of both of these programs?

Answer. OSD continues to review requirements for Apache and AHIP helicopters in the context of the Advanced Rotary Wing Aircraft Review.

The funded AH-64 procurement buys 807 aircraft providing sufficient Apaches to resource an attack helicopter warfighting force of 40 battalions. Of these, 26 are in the Active Component, 12 in the National Guard, and two in the US Army Reserves. This provides AH-64s for all heavy divisions and their parent Corps. Each of these units is authorized 18 Apaches. The plan is to equip the RC AH-64 units with 15 aircraft each initially, while providing 18 to each AC unit. Fielding RC units with 15 Apaches was the only force structure change as a result of terminating the Apache program. This prudent economic strategy will provide sufficient aircraft up front for training and float accounts. When force structure reductions are implemented, AH-64s will be re-distributed in accordance with DA priorities to AC and RC units. The procurement of 807 AH-64s will meet total force structure requirements.

Termination of the OH-58D program at 243 aircraft and approval to arm all OH-58Ds with Air-to-Ground Weapons have required force structure adjustments to resource only the Army's high priority reconnaissance/cavalry and selected contingency force attack units with the Armed OH-58D in the near term. None of the OH-58Ds can be assigned to the Reserve Components or lower priority Active Component units in the near term. LH will meet all mid to far term requirements.

## ARMY AVIATION MODERNIZATION PLAN

*Question.* In fiscal year 1989, the Army presented the Congress with a long-range aviation modernization master plan.

The fiscal year 1991 aircraft procurement budget is about half of the funding level projected in the plan. What is the impact?

Answer. The major impact is termination of the APACHE and OH-58D KIOWA WARRIOR procurement in Fiscal Year 1990.

*Question.* What aircraft procurement funding levels are now being projected in the out-years?

Answer. The Army Aviation Modernization Plan (AAMP) of May 1988 is currently being revised. The original funding concept of level funding remains intact. However, the funding quantity has been reduced from all annual FY89 constant of $3.5 billion to $2.0 billion. Within the reduced funding the Army will procure:

| | |
|---|---|
| LH | 2,096 |
| AH-64A | 807 |
| OH-58D | 243 |
| CH-47D | 472 |
| UH-60L | 2,257 |

*Question.* The plan envisioned the retirement of aging UH-1, OH-58, AH-1, and CH-54 aircraft. It was expected that about 1500 retirements would take place in fiscal year 1990 and 2,000 retirements would take place in fiscal year 1991. What are actual plans in this regard and why have they changed?

Answer. Previous (Jan 89) HQDA guidance identified a total of 455, not 1500, retirements in 1990 and 286, not 2,000, retirements in 1991. Based on force structure requirements and revisions to Army Aviation Modernization the following retirement schedule is predicted:

| | Fiscal year— | |
|---|---|---|
| | 1990 | 1991 |
| UH-1 | 150 | 100 |
| OH-58 | 71 | 0 |
| CH-54 | 0 | 9 |
| AH-1 | 32 | 62 |
| OH-6 | 37 | 100 |
| Total | 290 | 271 |

The OH-6, CH-54, and 130 each UH-1M helicopters are obsolete, unable to maintain operational readiness rates and fly only half their OPTEMPO. These aircrafts will retire not later than FY94.

## AH-64 APACHE READINESS

*Question.* Is the constrained procurement quantity of Apache's causing you to put fewer aircraft than necessary in maintenance and operational readiness floats? Is this phenomenon part of the readiness problem?

Answer. The Army requirement for the float account is 15 percent of the fleet. At a total of 807 and with the fielding of 40 battalions and the training base, the float account will be approximately nine percent. This is considered to be robust enough for forseen contingencies. The size of the float account has no negative impact on APACHE readiness.

*Question.* To what extent have Apache readiness problems caused Army units to rely more heavily on contractor maintenance support? How does the level of contractor maintenance support compare with other Army aircraft?

Answer. The USAREUR Commander has made the decision to supplement the Aviation Unit Maintenance (AVUM) and some Aviation Intermediate Maintenance (AVIM) units with contractor teams. These personnel are used to perform medium to low duration maintenance support. These teams work on all aircraft assigned to the APACHE battalion. Crew chief duties are still performed by unit personnel. In the case of Martin Marietta's Target Acquisition Designation Sight/Pilot Night Vision Sensor (TADS/PNVS), there has been a Special Repair Activity, manned by contractor personnel, to perform on-site parts repairs. The level of contractor maintenance support in Europe is above what is comparable to other aircraft systems.

*Question.* What was the reliability experience of the Apaches in Operation "Just Cause"? We read that one of the aircraft lost its Target Acquisition Designation System (TADS) during a return flight at night and another was grounded with hydraulic problems.

Answer. The "Just Cause" fully mission capable rate for the APACHE was 73 percent. On one mission, two APACHEs were scheduled to fly, one had to abort prior to take-off because of hydraulic problems. The other APACHE did fly the mission and did, in fact, accomplish the mission. That APACHE experienced a TADS circuit breaker problem. The pilot reset the circuit breaker and was returning for another pass when the ground commander called off the run with a mission complete.

*Question.* For the record, please comment on and provide statistical data on the maintenance and readiness situation for the following specific Apache components: tail rotor swashplate, main rotor blades, TADS, gun feed system.

Answer. Facts:

Tail Rotor Swashplate:
  Current Mean Time Between Repair (MTBR), 250 hours.
  System Specification, 1,500 hours.
  New Design Projection, 1,500 hours.

Lead the Fleet (LTF) has flow the new design and accumulated 487 hours with no failures. The swashplate was then removed and evaluated by the Government/Contractor engineer community. The assembly has been reassembled and will be installed on LTF for flights up to the 1500 hour projection. Field retrofit begins in April 1990.

Main Rotor Blades:
  Current MTBR, 920 hours.
  System Specification, 1,500 hours.
  New Design Projection, 1,500 hours.

Two sets of improved blades are in flight test;

One set has a thicker bond line and that has accumulated 1024 hours to date with no delaminations.

Another set has the thicker bond line and screws at the #1/#2 spar line and that has accumulated 372 hours to date with no delaminations.

Target Acquisition Designation System:
  Current MTBR, 143 hours.
  System Specification, 125 hours.
  Current system availability is 84 percent.

Gun Feed System:
  Actual Mean Rounds Between Stoppage, 1,025 rounds.
  System Specification, 3,838 rounds.
  Improved Design Projection, 3,838 rounds.
  New Design deliveries begin in May 1990.

## GRISLY HUNTER

*Question.* The budget includes $10.430 million for the procurement of the Grisly Hunter aircraft. Grisly Hunter is a two engine STOL aircraft equipped with an infrared sensing payload. Six of these aircraft are proposed to be procured for the Southern Command. Grisly Hunter is a CINC-unique program. The first aircrtaft was budgeted in fiscal year 1990. In the conference report last year, the committee directed the Army not to obligate the funding until four events occurred. To date, the Committee has not heard from the Army on these stipulations. What is the status of the Grisly Hunter program?

Answer. The Grisly Hunter (GH) RFP was released to industry February 15, 1990. Industry responses will be provided to the Program Manager on May 2, 1990. A revalidated/amended Statement of Need (SON) was received from the new CINC SOUTHCOM on March 18, 1990. The SON is being reviewed for validation by Joint Staff, DIA and the Army. The other three items are being prepared. The Army expects to provide all required reports to the Congress on 1 June, 1990. The Army has not and will not obligate FY 1990 Aircraft Procurement, Army until all Congressionally directed reports are presented to the committees.

*Question.* A Grisly Hunter prototype crashed into the water late last year. Has the cause of that crash been determined?

Answer. The accident Collateral Report is in the final stages of preparation and should be completed by the end of April, 1990. It would be premature for the Army to release it's findings at this time.

*Question.* What impact did the crash have on Grisly Hunter development and operational testing?

Answer. The test program used both the demonstration Casa 212 aircraft, as well as other test platforms, to assess the performance of candidate sensor packages. The loss of the demonstration aircraft precluded a complete "user assessment". Virtually all testing on the Forward Looking Infrared (FLIR) system was completed in the CASA 212 and the final 20 per cent of the Infrared Linescanner (IRLS) sensor testing was completed in a surrogate test aircraft. The crash halted further multi-sensor development, integration and evaluation beyond that of the baseline system. The operational data collected in Sioux City, Iowa and A.P. Hill, VA will be used at the Milestone III In Progress Review (IPR) and support a production decision.

*Question.* What changes have been made in the testing program in the last year?

Answer. The operational user assessment planned for the SOUTHCOM area of operations could not take place due to an inability to secure basing rights in Honduras. The user assessment was then scheduled to take place in the Joint Tactical Force (JTF) Four area of responsibility (AOR). The JFT Four assessment did not take place due to the aircraft crash. Operations at Sioux City, IA. and A.P. Hill VA have provided sufficient evaluation data with the exception of operations conducted in conjunction with another cueing system.

*Question.* What are the current testing milestones?

Answer. Testing to support the baseline system has been completed and will be provided to Congress in early summer. Preplanned product improvement (P3I) sensor evaluations are ongoing and will continue in FY 1991. The P3I MTI radar, for example, is scheduled to begin flight tests in November 1990 and will continue into 1991.

*Question.* What are the other program milestones for Grisly Hunter?

Answer. Receipt of contractor proposals, May 2, 1990.

Government IPR, May 1990.

Congressional Reports, June 1990.

Contract Award, August 1990.

Award Option for Aircraft #2, October 1990.

*Question.* The Committee heard testimony from General Max Thurman, the current commander of the Southern Command, late last month. We questioned him specifically on his aircraft needs and Grisly Hunter was not even mentioned? Why? Is Grisly Hunter a lower priority program for General Thurman than it was for his predecessor who generated the requirement?

Answer. At the time of General Thurman's testimony, he was reviewing the Grisley Hunter requirement based on an expanding mission, including counternarcotics. ———.

The FY 1990/91 SOUTHCOM Integrated Priority List (IPL), developed by the previous CINC, ranked theater programs without regard to functional areas. ———. The current CINC changed the IPL development methodology. SOUTHCOM now rank orders the IPL by functional area (such as Command and Control, SIGINT, IMINT ETC) as reflected in the FY 1992-97 IPL. Prioritization by functional area cannot be directly compared to previous IPL rankings. As a result of a comprehensive strategy review and a reprioritization of SOUTHCOM programs, imagery collection, of which Grisly Hunter is an element, ———. The current CINC further reiterated his strong support in a May 25, 1990 message to JCS specifically addressing Grisly Hunter and its critical role in both counterinsurgency and counternarcotics operations.

*Question.* When can the Committee expect a response to the requirements of last year's conference report?

Answer. Response to last year's conference committees languge will be provided by June 1, 1990.

*Question.* What pre-planned product improvements (P3I) are being considered for Grisly Hunter, what is their justification, and how much will they cost?

Answer. The P3I improvements mentioned in the CINC's updated SON are being reviewed for validation by Joint Staff and the Army. Valid P3I initiatives will be costed and reported to the Congressional Appropriations Committee on or about June 1, 1990.

## APACHE ATTACK HELICOPTER

*Question.* Last year Congress appropriated $1,487,527,000 for the procurement of 132 Apache attack helicopters. This was the total quantity authorized for fiscal year 1990 and 1991. What is the status of the fiscal year 1990 Apache procurement contract?

Answer. The Program Manager (PM) for the APACHE is currently contracting for the first 66 with an add-on to the contract for the second 66. Negotiations for the first 66 continued to take advantage of quoted vendor costs. Only half of the $1.4 billion appropriated was authorized. Negotiations for the second 66 are ongoing as an add-on to the first 66 contract. The contract for the second 66 can be definitized, but not signed until the Office of the Secretary of Defense (OSD) releases the remaining resources. The resources for the second 66 have yet to be authorized by the House Armed Services Committee and Senate Armed Services Committee. The contract for the first 66 is scheduled to be signed by the end of April 1990.

*Question.* The funding level in 1990 assumed the availability of $50.4 million which was appropriated in fiscal year 1989 for the Apache program. What is the status of these funds?

Answer. OSD has these funds on hold. OSD will release the funds to the Army, if they are required, after definitizing, but prior to signing the contract for the first 66. All indications are that these resources will be required.

*Question.* How many Apaches does the Army actually expect to procure with the total funding available in 1990?

Answer. One-hundred and thirty-two.

*Question.* If fiscal year 1990 is the last year of Apache procurement, how much will it cost to terminate the program and how much is included in the 1991 budget for this purpose?

Answer. In accordance with Congressional mandate contained in the 1984 Department of Defense (DOD) Appropriation Bill, Report No. 98-292, page 81, management and engineering services for the AH-64 APACHE production contracts are funded for 12-month annual fiscal increments as a directed deviation to full-funding policy. The Fiscal Year (FY) 1991 APACHE funding request is for continuation of the necessary management and engineering services to support deliveries and post production support of the contemplated 132 aircraft and end items authorized and appropriated in FY 1990. Since the termination costs will not be required until FY 1993, these costs have not been negotiated as of this time.

*Question.* What will happen to the production facilities of the prime contractor and the principal subcontractors?

Answer. Production facilities will be utilized by the contractor during FY 1991 and FY 1992. Termination costs associated with cessation of production will not occur until FY 1993 and will consist of the recovery, preservation and storage of government-owned tooling and equipment.

*Question.* General O'Neill, what foreign sales of Apache are being considered? How will they be impacted by Apache termination?

Answer. The Army has an implemented sales case with Israel for 18 Apaches, for which delivery will begin in September 1990. Potential sales include 24 for Egypt, ———.

The sale to Israel will not be impacted by the proposed termination, since the payback for their aircraft will be an add-on to the Army's final contract scheduled to be awarded in November 1990. The other possible sales may be impacted because there are no signed agreements. Commitments are needed soon in order to add these requirements without a break in production which would affect both the price and availability of the Apache. Long lead items for the final Army contract are already on order.

*Question.* Are termination, program support, and engineering support costs fully funded in your 1991 budget? If not, by how much are they short?

Answer. Yes, the above costs are funded.

*Question.* For the record, provide a complete breakdown of the $104.2 million shown for Apache procurement in fiscal year 1991.

Answer. The $104.2 million for Apache procurement in fiscal year 1990 is shown below:

[In millions of dollars]

| | |
|---|---|
| System Program Management [1] | 67.5 |
| Training | 12.9 |
| Production Support | 23.8 |

[1] FY91 SPM BREAKOUT—

| | |
|---|---|
| Program Management | 12.1 |
| System Engineering Management and Computer Support | 16.7 |
| ILS and Offsite Support | 9.0 |
| Project Engineering Support | 16.8 |
| Production and Product Support | 12.9 |
| Total | 67.5 |

## UH-60 BLACK HAWK

*Question.* The budget includes $272,118,000 for procurement of 72 Black Hawk aircraft and an additional $197,191,000 in advance procurement. Fiscal year 1991 is the last year of a multi-year contract. The budget request is $83 million greater than last year's appropriation and $51 million greater than last years forecast for fiscal year 1991 for the same number of aircraft. Why have Black Hawk costs gone up so dramatically?

Answer. The Black Hawk unit prices have not gone up by an appreciable amount. There is not direct comparison between the Fiscal Year (FY) 1991 President's Budget and the FY 1990 amended budget. The various budgets submitted in FY 1989 for FYs 1990/1991 included a separate budget requirement for the UH-60A requirement and the Special Operations Aircraft (SOA) MH-60K. The total funding for these requirements was $425.9 million in FY 1990 and $449.1 million in FY 1991. In both cases, the level of funding for the UH-60A line was underfunded and the MH-60K line was overfunded; however, the total funding of $425.9 million and $449.1 million was adequate. The increase in level of funding from FY 1990 to FY 1991 of $23.2 million was due to the following requirements:

+$7.4 million—Increased advanced funding for follow-on multiyear airframe contract (FY 1992-1996).

+$10.1 million—Increase in quantity of External Stores Support System (ESSS) kits from 112 to 168.

+$5.7 million—Training requirement increased for upgrades to the UH-60 simulators (Synthetic Flight Training Systems (SFTS)) and the addition of the Cockpit Emergency Procedure Trainer (CEPT).

The increase of $20.2 million from $449.1 million in last years budget to $469.3 million in the FY 1991 President's Budget is due to a Department of the Army (DA) funding increase to account for protected increases in inflation.

The actual amount appropriated in FY 1990 was $386.3 million and the FY 1991 President's Budget request for FY 1991 is $469.3 million which is an increase of $83 million. The FY 1990 funding was not considered to be sufficient to fully fund the balanced program that was requested. Several support efforts and hardware items were either reduced or terminated to execute within the constrained budget. The increase in funding requested for FY 1991 is based on the following additional requirements:

+2.0 million—Airframe unit price increases due to electromagnetic environment (EME) and flight data recorder (FDR) incorporation.

+$17.3 million—Increased advance procurement for follow-on multiyear contracts.

+$2.4 million—Due to a difference in advance procurement credits, the net requirement for engines in FY 1991 is greater than the FY 1990 requirement.

+$1.0 million—Inflation increases for Government Furnished Equipment (GFE) requirements.

+$23.1 million—Additional nonrecurring efforts.

+$1.4 million—Alternate sources, manprint, value engineering.

+$13.4 million—Life extension for production tooling.

+$1.7 million—SINCGARS.

+$1.6 million—Contractor engineering support.

+$5.0 million—Emergency Position Locating Reporting System/Personnel Locator System.

+$18.2 million—Increased quantities of mission kits.

+$4.9 million—Medevac Heaters.

+$10.4 million—ESSS.

+$1.9 million—Skis.

+$1.0 million—Various small kits.

+$15.8 million—Additional requirement for CEPT and SFTS block upgrade to include UH-60L configuration requirements.

+$3.2 million—Increased data requirements to include updates to Depot Maintenance Work Requirements, maintenance manuals, user manuals, etc.

*Question.* In multiyear contract, the cost of the last year's program should be known almost to the penny. Why was last year's estimate so bad? What is included in the current program that was not forecast last year?

Answer. The actual increase for FY 1991 from last year's estimate to this year's estimate is only $20.0 million. The majority of that increase is due to inflation, new mission equipment non-recurring effort and additional quantities of mission kits. As indicated in the answer to the question above, the FY 1990 budget submissions are not structured the same as the FY 1991 President's Budget and cannot be readily compared.

*Question.* What changes have taken place in the procurement objective for Black Hawk since last year and why?

Answer. There have been no official changes in the procurement objective since February 1989 when the total quantity was approved at 2,253. There have been numerous budget exercises that have changed the rate of procurement from a maximum of ten per month to as low as zero and some Congressional testimony has indicated that a total of approximately 1,621 aircraft is the current goal; however, there has been no official change to the approved quantity of 2,253.

*Question.* What is the procurement strategy for fiscal year 1992 and beyond?

Answer. The FY 1991 President's Budget, as submitted, contains advance funding to support the continuation of the FY 1989-FY 1993 engine multiyear contract and the initiation of a FY 1992-FY 1996 airframe multiyear contract. At the time the budget was being prepared the long range plan was to continue with multiyear contracts for the airframe and engine until the total procurement objective was procured. The projected budget reductions, as identified in the answer to the above question, will no longer provide sufficient funding for that procurement strategy. A revised procurement strategy has not been approved.

*Question.* How much is included in the fiscal year 1991 advance procurement budget for the next airframe multiyear contract? Provide for the record a breakout showing how much of the fiscal year 1991 advance procurement will be applied to each year of the airframe multiyear contract?

Answer. The advance procurement funding in FY 1991 for the proposed FY 1992-1996 airframe multiyear contract is $149.5 million. Allocation by year is as follows:

FY 1991 Advance Funding for FY 1992—$111.2 million; FY 1993—$23.0 million; FY 1994—$9.4 million; FY 1995—$3.9 million; FY 1996—$2.0 million.

*Question.* What is the status of the electro-magnetic interference protection program for Black Hawk?

Answer. The EME protection for the Black Hawk is proceding as planned. The effort was structured into two phases. The initial phase protected the hydraulic logic module from electromagnetic interference. This change has been incorporated in the production line and the fielded fleet. The second phase incorporates changes to several components and is planned for production line incorporation in June 1990 with retrofit of the fielded fleet scheduled to begin in November 1990.

## CH-47 SAFETY PROBLEMS

*Question.* Last year, we had an extended discussion of safety problems with CH-47 aircraft. Since December, 1987, the fleet had been grounded five times and 22 safety messages had been issued. The causes of some of the problems had not been found. What is the status of the resolution of CH-47 safety problems?

Answer. All of the known safety deficiencies on the CH-47D have been corrected or are in the process of being fixed. The longest lead time fix is installation of single piece cross drive shafts, which links the engine and combining transmission, to replace the present model shaft that has cracked in a few instances. This fix will be completed by February 1991.

*Question.* How many safety messages have been issued for the CH-47 in the last year?

Answer. During 1989, there were 15 safety-of-flight messages for the CH-47D helicopter. Only seven of these reflected discovery of a safety issue.

(1) *10 Jan 89—Install fire protection control tubes. Aircraft grounded until message complied with. This was an interim measure pending installation of steel vs aluminum control tubes.

(2) 27 Jan 89—Modified 10 Jan 89 message above to install improved protection materials and continued grounding until message complied with.

(3) 8 Feb 89—One time inspection of rotor hubs to ensure flow of oil. Aircraft were not grounded.

(4) 18 Jul 89—One time inspection of locking nuts on a hydraulic actuator. Aircraft were not grounded.

(5) *29 Jul 89—Aircraft grounded for a design defect in −3 model of combining transmission cooling fan.

(6) *10 Aug 89—Aircraft grounded due to manufacturing defect in −4 model of combining transmission cooling fan.

(7) *27 Oct 89—Regrounding of all aircraft to fix the fixes required by 29 Jul 89 and 10 Aug 89 messages. This grounding was to replace spline drive grease with a more satisfactory type of grease.

* Denotes grounding of aircraft.

*Question.* How many times in the last year has the CH-47 fleet been grounded?

Answer. The CH-47 fleet was grounded four times during 1989 for two separate safety issues: fire protection of control rods and defects in a transmission cooling fan. There were no injuries or loss of equipment in 1989 attributable to these issues.

*Question.* What safety improvements are being made to the CH-47 fleet, how much will each cost, and how much is included in the fiscal year 1991 budget for this purpose?

Answer. The following items were either fixed in 1989 or are still in the process of being fixed:

a. Engine clutches that slip ($.5 million).

b. Engine clutches that overrun (no cost).

c. Potential for control rods to burn through ($7 million).

d. Fans that fail with smoke and fire ($2.9 million).

e. Night Vision Goggles improvements to cockpits (estimated $5 million).

f. Tendency for sheet metal and bracket failures on critical components ($.3 million).

g. Rotor and drive shaft vibration reductions ($4.4 million).

h. Cross shaft cracking fixed by new one piece shaft ($2.8 million).

i. Installation of flight data recorder (estimated $35 to $45 million).

j. Fire detection in the aft pylon area (estimated $6 to $7 million).

k. Development and installation of a cockpit ramp tongue switch to stop air flow in case of fire ($2 million).

l. Adjustable engine mounts to reduce stress on cross drive shafts ($1 million).

m. A general improvement in Contractor Quality Processes (no cost).

Fiscal year 1991 includes $14 million for that part of the above work not already funded.

## OV-1D MOHAWK

*Question.* The budget proposes to terminate the OV-1D Mohawk surveillance aircraft modification program and to transfer the procurement funds in fiscal year 1990 to 1991. What is the basis for this decision?

Answer. The Army budget terminated all procurement funding for the OV-1D Mohawk modification program beginning in FY 1990. FY 1990 and FY 1991 have been funded to pay for Product Manager support, in-house ECP's for safety, fleet and program termination. The Army made the decision to terminate the OV-1D modification program as a cost savings measure (O&S as well as APA) in anticipation of the fielding of JSTARS. The Army determined that it was economically unwise and unsupportable to improve the capability provided by the OV-1D aircraft in light of the sizable investment being made in development and production of the JSTARS system.

*Question.* Was the decision to terminate the OV-1D modification made by the Army or by OSD?

Answer. Army recommended program termination to OSD. Termination of the program is consistent with the Army strategy of taking near term risks to afford long term improvements. In the long term (late 1990s), the U.S. Air Force Joint STARS aircraft will provide moving target surveillance support to our deployed forces world wide.

*Question.* What is the impact of this termination on the Army's surveillance capabilities?

Answer. Termination of the program is consistent with the Army strategy of taking near term risks to afford long term improvements. In the long term (late 1990s), the U.S. Air Force Joint STARS aircraft will provide moving target surveillance support to our deployed forces world wide. In the near term, we will have difficulty maintaining older OV-1D aircraft to meet mission requirements and by the mid 1990's will not have enough aircraft to meet requirements. For these reasons, on schedule delivery of the Joint-STARS aircraft is critical to the Army.

*Question.* What specifically will be done with the $200,000 in funding for this program currently shown in fiscal years 1990 and 1991?

Answer. Provides funding for Product Manager costs associate with system matrix support, in-house ECP's for safety, fleet retirement, and program termination.

*Question.* What will the OV-1 fleet consist of as a result of the termination. How long will these aircraft be flown?

Answer. The OV-1 fleet will consist of 94 OV-1D model aircraft (3 OV-1Ds have already been retired in FY as a result of program termination). Current planning requires the OV-1D aircraft to be flown until 1997, when the Joint-STARS system assumes the Army's MTI mission requirements. OV-1D aircraft will be retired in the 1992-97 time frame, according to the following schedule:

| | Fiscal year— | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| Acft: Retired | 9 | 10 | 2 | 10 | 20 | 33 | 10 |
| Fleet: Balance | 85 | 74 | 73 | 63 | 43 | 10 | 0 |

*Question.* What will replace the OV–1 and when will it be available?

Answer. The Joint STARS aircraft is scheduled to assume the Army's mission in 1997. Warfighting Commanders-In-Chief have an urgent need for an airborne wide-area surveillance and target acquisition radar system capable of continuous coverage out to a ——— into the enemy rear. Commanders must have the capability to detect, locate, classify, and track moving targets for situation assessment, to avoid surprise and to attack targets out to the range of existing and developing weapons. This capability becomes even more important in the current and projected situation. As we execute significant troop reductions in Europe post-CFE, there will be significant Soviet troop movements and instability. Our thinned out forces cannot tolerate surprise and must have accurate and timely tracking/classification data. In the event of hostilities, the wide area surveillance of JSTARS is ever more important in support of smaller forces defending a relatively larger area. Similarly, any involvement in the Middle East would need the capabilities of the JSTARS—both for looking deep and avoiding surprise on the flanks. ———. Additionally, JSTARS will detect and locate rotating antennas and operating helicopters. Wheeled and tracked targets can also be differentiated at these ranges to assist in prioritizing targets. These are absolutely key elements of intelligence for our forces wherever they may be deployed.

The long range, wide area, near-real-time surveillance and tracking capabilities of the JSTARS are critical to executing Airland Battle anywhere in the world. The JSTARS, and the Army Ground Station Modules, are deployable to support our forces across a wide spectrum of operations.

## AN/ASC–156B Airborne Command and Control Console

*Question.* Last year, Congress added $4.8 million to the Army budget to procure and install AN/ASC–15B command and control consoles. The conferees stated their expectation that funding for this item be carried as a separate line within this appropriation and directed that the Army budget for this in its five-year program. Why has this direction been ignored?

Answer. The FY 1990 $4.8 million procurement funding for the AN/ASC–15B Army Airborne Command and Control Console (AACCC) is being carried as a separate line. The FY 1991 funds are already locked in and are being carried as a separate PIP line within the Black Hawk modification line. A separate budget line has been established in the current POM process.

*Question.* What is the status of the fiscal year 1990 procurement? On what aircraft will they be installed?

Answer. The contract for the FY 1990 budget ($4.8 million) will be let January 1991. Systems fielded from this procurement will be installed on the UH-60 Black Hawk.

*Question.* What plans does the Army have for procurement of this item in the outyears?

Answer. The Army's plan for procurement of this item in the outyears is dependent on budget constraints. To date, 34 consoles have been procured. The consoles can be installed on either UH-60 or UH-1H aircraft with the appropriate installation kit. The specific aircraft receiving the AACCC will depend on the future force structure of the Army.

*Question.* What will be the procurement strategy?

Answer. The preference of the Army will be a competitive requirement's contract if allowed by budget constraints.

## TOTAL PACKAGE FIELDING

*Question.* The budget includes $16.2 million for "total package fielding". This is the first time that such an entry has appeared in the procurement budget. What is it?

Answer. Total package fielding funds the purchase of logistical and administrative items considered necessary to insure that newly fielded equipment is supportable during initial days of operation.

*Question.* What specifically will be procured with the $16.2 million?

Answer. Funds purchase Major Items of Equipment (MTOE), tools, repair parts, Special Tools & Test Equipment (STTE), Peculiar Ground Support Equipment Maintenance (PGSE), and Common Table of Allowances (CTA) for Aviation Unit Maintenance/Aviation Intermediate Maintenance (AVUM/AVIM) customers in support of all Army rotary wing aircraft as mandated, authorized and approved by AR 700-142. Included in the funds requirements are associated TDY in conjunction with package handoffs to gaining customers and associated requirements negotiations, MTOE scrubs on-site, and deprocessing of equipment.

*Question.* Where were these costs funded previously and why have they been transferred to procurement?

Answer. Funding for Total Package Fielding was transferred from OMA to APA in an effort to more accurately indentify total equipment fielding costs and ensure full funding of equipment packages at one time from one appropriation.

*Question.* What funding levels are projected in the out-year for total package fielding for aircraft procurement?

Answer. Based on the January 1990 Amended President's Budget, out-year funding is:

[In millions of dollars]

| Fiscal year: | |
|---|---|
| 1991 | 16.2 |
| 1992 | 4.2 |
| 1993 | 1.6 |
| 1994 | .158 |

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, MARCH 29, 1990.

# PROCUREMENT OF WEAPONS AND TRACKED COMBAT VEHICLES, ARMY

## WITNESS

**MAJOR GEN. JAMES C. CERCY, DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT AND ACQUISITION), DEPARTMENT OF THE ARMY**

## INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon the Committee considers the $2,172,600,000 budget request for Procurement of Weapons and Tracked Combat Vehicles, Army. Of the total request, $860,000,000 is proposed to be derived by transfer from programs funded in the 1990 appropriation and now being deferred. The principal witness is Major General James C. Cercy, Deputy for Systems Management, Office of the Assistant Secretary of the Army for Research Development, and Acquisition. General Cercy, we welcome you in your first appearance before the Committee in your current capacity. Your prepared statement will be made a part of the record. Please summarize it at this time and then we will proceed to questions.

## SUMMARY STATEMENT OF GENERAL CERCY

General CERCY. It is a pleasure and honor for me to appear before you to present the Army fiscal year 1991 budget request for weapons and tracked combat vehicles. This year's request is for $2.1 billion as compared to last year's $2.5 billion, a $400 million reduction. This reduction is keyed mainly to our limited tank production in 1991, a hard decision that the Army made. The Army analyzed the changing threat and associated declining resources and has a plan to retain a quality force over the next five years to meet our world-wide equipment and to maintain our technological edge into the next century. The Army will decrease in size over this period but will remain a lethal and survivable force capable of meeting heavy, light and special operations forces requirements worldwide. We will have over 7,000 tanks in the M-1 class or better in our force at the end of the fiscal year 1991 funded delivery period. Therefore, we feel we can take a midterm risk and concentrate on our armored modernization technology program to bring on a new tank and associated armored vehicles at the turn of the century.

In addition to the 225 tanks, the fiscal year 1991 budget contains a request for procurement of 600 brand new fighting vehicles, a low rate initial production buy for the M109 Howitzer, improvement program, continued production of the M119 light 105 millimeter

Howitzer, and procurement of the 120 millimeter mortar to replace the 4.2 inch mortar. Small arms procurement includes a final millimeter, the M16A and the squad automatic weapon. We appreciate your support of the Army's programs and I am prepared to answer any questions you and the committee may have.

[The statement of General Cercy follows:]

## STATEMENT OF MAJOR GENERAL JAMES C. CERCY

MR. CHAIRMAN, I AM MAJOR GENERAL JAMES C. CERCY, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION. IT IS AN HONOR TO APPEAR BEFORE YOU TODAY TO PRESSENT THE ARMY'S FY91 BUDGET REQUEST FOR WEAPONS AND TRACKED COMBAT VEHICLES (WTCV).

THE ARMY WTCV PROCUREMENT REQUEST FOR FY91 IS $2.173B. THIS REQUEST FUNDS THE PROCUREMENT OF THREE TRACKED VEHICLE SYSTEMS, THE ABRAMS TANK, THE BRADLEY FIGHTING VEHICLE SYSTEM, AND THE M109 IMPROVED HOWITZER (HIP). IN ADDITION, IT FUNDS THE PROCUREMENT OF THE M119 LIGHT 105MM HOWITZER, THE SQUAD AUTOMATIC WEAPON (SAW), M16A2 RIFLE, 120MM MORTAR, 9MM PERSONAL DEFENSE WEAPON, MODIFICATIONS TO CURRENT SYSTEMS, AND TRAINING DEVICES AND SUPPORT FOR OUR FIELDED WEAPONS AND TRACKED VEHICLES. AS IN FY90 THE ABRAMS TANK AND BRADLEY FIGHTING VEHICLE SYSTEM REPRESENT THE LARGEST PROCUREMENETS, 35% AND 33% RESPECTIVELY. THE FY91 WTCV PROCUREMENT REQUEST REPRESENTS 20% OF THE TOTAL ARMY PROCUREMENT.

I WOULD NOW LIKE TO ADDRESS THE REQUESTED FUNDING BY MAJOR PROGRAMS. I WILL COVER THE PROGRAMS BY MAJOR AREA: TRACKED COMBAT VEHICLES, WEAPONS AND OTHER TRACKED VEHICLES, AND SUPPORT EQUIPMENT AND FACILITIES.

### TRACKED COMBAT VEHICLES

TRACKED COMBAT VEHICLES CONSIST OF THE ABRAMS TANK AND THE BRADLEY FIGHTING VEHICLE SYSTEM.

### ABRAMS TANK

THE ABRAMS TANK REMAINS THE CORNERSTONE OF THE ARMY'S GROUND COMBAT COMBINED ARMS TEAM. THE M1A1 TANK IN PRODUCTION TODAY, EQUIPPED WITH THE 120MM ARMAMENT SYSTEM, IS THE FINEST TANK IN THE WORLD. FY91 REPRESENTS THE FINAL YEAR OF PROCUREMENT OF THE ABRAMS TANK FOR THE U.S. ARMY. AS A RESULT OF THE ONGOING CONVENTIONAL FORCES EUROPE NEGOTIATIONS, WHICH HAS RESULTED IN THE SLOWING OF THREAT MODERNIZATION AND REDUCTION IN THREAT AND U.S. FORCES, AND A CONSTRAINED BUDGET ENVIRONMENT THE ARMY HAS DECIDED TO TERMINATE ABRAMS PROCUREMENT AFTER FY91. THE $747.324M REQUESTED FOR ABRAMS WILL PROCURE 225 TANKS, 163 IN THE M1A1 CONFIGURATION AND 62 IN THE M1A2 CONFIGURATION. THE M1A2 WILL BUILD ON THE PROVEN CAPABILITIES OF THE M1A1--120MM CANNON, NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) OVER-PRESSURE SYSTEM AND MICRO-CLIMATIC COOLING SYSTEM, AND HIGH AGILITY AND MOBILITY--BY ADDING A SUITE OF FIGHTABILITY ENHANCEMENTS THAT WILL GIVE THE ARMORED CREWMAN THE ABILITY TO FIGHT OUT-NUMBERED ON THE MODERN BATTLEFIELD. THESE ENHANCEMENTS, UNDERGOING DEVELOPMENT TODAY AS THE ABRAMS BLOCK II IMPROVEMENT PROGRAM, INCLUDE THE FOLLOWING:

- DISTRIBUTED DATA AND POWER ARCHITECTURE
- SURVIVABILITY ENHANCEMENTS
- IMPROVED COMMANDER'S WEAPON STATION
- COMMANDER'S INDEPENDENT THERMAL VIEWER
- POSITION/NAVIGATION EQUIPMENT

THE 62 M1A2S BEING PRODUCED ARE REQUIRED TO VERIFY THAT THE PRODUCTION FACILITIES ARE CAPABLE OF SATISFACTORILY PRODUCING THE M1A2 AND TO PROVIDE M1A2 TANKS FOR FOLLOW-ON TEST AND EVALUATION. AT THE CONCLUSION OF THE FUNDED DELIVERY PERIOD FOR THE FY91 PROCUREMENT THE PRODUCTION LINE WILL BE LAID AWAY IN THE CONFIGURATION FOR PRODUCING THE M1A2. THIS WILL ALLOW A RESTART OF THE PRODUCTION LINE, PRODUCING THE BEST TANK, IN THE EVENT THE NEED SHOULD ARISE.

### BRADLEY FIGHTING VEHICLE SYSTEM

THE M2/M3 BRADLEY FIGHTING VEHICLE SYSTEM (BFVS) SATISFIES BOTH THE INFANTRY AND CAVALRY FIGHTING VEHICLE REQUIREMENTS FOR THE FORCE. IT IS THE MOST ADVANCED INFANTRY FIGHTING VEHICLE IN THE WORLD TODAY. THE BRADLEY PROVIDES THE COMPATIBILITY NEEDED TO OPERATE WITH OTHER MEMBERS OF THE COMBINED ARMS TEAM AS THEY MANEUVER AND FIRE TO DESTROY THEIR TARGETS. IT ALLOWS OUR MECHANIZED FORCES TO MANEUVER AND FIGHT DURING DAY OR NIGHT COMBAT OPERATIONS WHILE PROVIDING HIGHLY ACCURATE FIRES WHILE ON THE MOVE. A TOTAL OF 6124 WILL HAVE BEEN PROCURED THROUGH FY90. IN FY91 WE ARE REQUESTING $657.36M TO PROCURE 600 VEHICLES AND $30.5M IN ADVANCE PROCUREMENT FUNDS FOR THE FY92 BUY. FY91 IS

THE 12TH YEAR OF PRODUCTION FOR BRADLEY AND WILL BE THE SECOND YEAR OF A FIVE YEAR MULTIYEAR PROCUREMENT. THE FY91 BRADLEY MODIFICATION PROGRAM CONTINUES RETROFIT OF THE HIGH SURVIVABILITY IMPROVEMENTS, 600 HORSEPOWER POWERTRAIN (ENGINE AND TRANSMISSION), AND PROVIDES EYE PROTECTION AGAINST LASERS THOUGH THE ADDITION OF FILTERS TO THE TOW MISSILE SYSTEM VISUAL MODULE AND UNITY WINDOW. THE POWERTRAIN UPGRADE WILL INCREASE RELIABILITY AND MAINTAINABILITY WHILE PROVIDING THE POWER NEEDED TO INCREASE AGILITY AND MOBILITY ON THE BATTLEFIELD. THE HIGH SURVIVABILITY IMPROVEMENTS SIGNIFICANTLY INCREASE THE BRADLEY'S SURVIVABILITY WHEN HIT AND PROTECT OUR SOLDIERS EYES WHILE ALLOWING HIM TO ACQUIRE AND ENGAGE TARGETS WHILE THE ENEMY IS ACTIVELY USING LASERS.

THIS CONCLUDES THE TRACKED COMBAT VEHICLE PORTION OF WTCV. I WOULD NOW LIKE TO ADDRESS WEAPONS AND OTHER TRACKED VEHICLES.

## WEAPONS AND OTHER TRACKED VEHICLES

WEAPONS AND OTHER TRACKED VEHICLES INCLUDE THE M109 (155MM) HOWITZER IMPROVEMENT PROGRAM (HIP), M119 (105MM) LIGHT HOWITZER, 120MM MORTAR, 9MM PERSONAL DEFENSE WEAPON, M16A2 RIFLE, AND SQUAD AUTOMATIC WEAPON.

### M109 (155MM) HOWITZER IMPROVEMENT PROGRAM

THE M109A6 (155MM) HOWITZER IMPROVEMENT PROGRAM (HIP) INCORPORATES THE RELIABILITY, AVAILABILITY, AND MAINTAINABILITY IMPROVEMENTS OF THE HOWITZER EXTENDED LIFE PROGRAM AND MISSION PERFORMANCE ENHANCEMENTS INTO A FULLY INTEGRATED SYSTEM. THE HIP PROGRAM IMPROVES THE CURRENT M109A2/A3 HOWITZER BY PROVIDING INCREASED RANGE, 22 TO 30 KM, ON-BOARD BALLISTIC COMPUTATION, A LAND NAVIGATION SYSTEM, BUILT-IN TEST EQUIPMENT, SURVIVABILITY ENHANCEMENTS, AND NBC MICROCLIMATIC COOLING. THESE IMPROVEMENTS PROVIDE THE FIELD ARTILLERY THE CAPABILITY OF SURVIVABLE, SEMI-AUTONOMOUS OPERATIONS TO COUNTER THE MASSIVE FIRES OF THE SOVIET ARTILLERY. THE BUDGET REQUEST OF $206.8M SUPPORTS THE PROCUREMENT OF 163 IMPROVED HOWITZERS TO PROVIDE ADEQUATE FIRE SUPPORT TO OUR MECHANIZED AND ARMOR FORCES.

### M119 (105MM) LIGHT HOWITZER

THE FY91 BUDGET REQUESTS $26.2M TO PROCURE 42 M119 (105MM) LIGHT HOWITZERS. THE M119 LIGHT HOWITZER WILL BE USED BY THE LIGHT INFANTRY FORCES TO SATISFY REQUIREMENTS FOR LIGHT WEIGHT ARTILLERY WITH EXTENDED RANGE AND INCREASED RELIABILITY. THE LIGHT WEIGHT ENHANCES STRATEGIC DEPLOYABILITY AND BATTLEFIELD MOBILITY. ITS SIGNIFICANTLY INCREASED RANGE AND RAM, OVER THE OLD M102, WILL IMPROVE FIRES IN SUPPORT OF THE LIGHT DIVISIONS. ON 7 DECEMBER 1989, THE 7TH INFANTRY DIVISION WAS THE FIRST UNIT EQUIPPED WITH THE M119 LIGHT HOWITZER.

### 120MM MORTAR

THE 120MM MORTAR IS A NON-DEVELOPMENTAL ITEM PROCUREMENT TO REPLACE THE CURRENTLY FIELDED, WORLD WAR II VINTAGE, 4.2 INCH MORTAR FOUND IN OUR HEAVY DIVISIONS. THE SYSTEM WILL BE EMPLOYED IN TWO VARIANTS, A TOWED VERSION FOR THE 9TH INFANTRY DIVISION AND A CARRIER MOUNTED VERSION FOR OUR HEAVY DIVISIONS. THE FY90 PROCUREMENT WILL COMPLETE THE PROCUREMENT REQUIREMENT FOR THE TOWED VERSION TO ACCOMPLISH TEST, EVALUATION AND FIELDING TO THE 9TH INFANTRY DIVISION AND BEGINS THE U.S. PRODUCTION OF THE THE CARRIER MOUNTED VERSION. THE $12.326M REQUESTED FOR FY91 WILL FUND THE U.S. PRODUCTION OF 196 CARRIER MOUNTED 120MM MORTARS FOR FIELDING IN OUR HEAVY DIVISIONS.

### 25MM BUSHMASTER

THE BUDGET SUBMIT FOR THE 25MM BUSHMASTER AUTOMATIC CANNON, THE PRIMARY WEAPON OF THE BRADLEY FIGHTING VEHICLE SYSTEM, IS FOR $27.5M IN FY91 TO PROCURE 611 GUNS. FY90 WAS THE LAST YEAR OF A FIVE YEAR MULTIYEAR CONTRACT AND FY91 IS THE FIRST YEAR OF A FOLLOW-ON THREE YEAR MULTIYEAR CONTRACT.

## M16A2 RIFLE

THE ARMY'S MODERNIZATION OF ITS SMALL ARMS CONTINUES WITH THE SEVENTH YEAR BUY OF THE M16A2 RIFLE WHICH INCORPORATES NEW SIGHTS, IMPROVED MUZZLE COMPENSATOR, AND A HEAVIER BARREL. THE BUDGET REQUEST OF $14.786M WILL PROCURE 33,160 M16A2 RIFLES IN FY91. AS THE M16A1s ARE DISPLACED BY THE FIELDING OF THE M16A2, THOSE WITH ADDITIONAL SERVICE LIFE WILL BE MODIFIED TO THE M16A2 CONFIGURATION. THE M16 MODIFICATION REQUEST IS FOR $5.623M TO PROCURE 24,365 MODIFICATION KITS.

## 9MM PERSONAL DEFENSE WEAPON

IN FY90 CONGRESS DENIED FUNDING FOR THE PROCUREMENT OF THE 9MM PERSONAL DEFENSE WEAPON WITHOUT PREJUDICE. THE FY91 BUDGET SUBMIT REQUESTS $8.021M FOR THE PROCUREMENT OF 35,101 WEAPONS WHICH WILL FILL THE ARMY REQUIREMENT FOR THIS WEAPON.

## SQUAD AUTOMATIC WEAPON

THE BUDGET REQUEST FOR THE SQUAD AUTOMATIC WEAPON IS $12.45M IN FY91. THIS REQUEST WILL PROCURE 7241 WEAPONS. FY91 IS THE FIFTH YEAR OF A FIVE YEAR MULTIYEAR CONTRACT AND THE NINTH YEAR OF PROCUREMENT. TO DATE 8,179 WEAPONS HAVE BEEN DELIVERED TO THE ARMY.

## SUPPORT EQUIPMENT AND FACILITIES

SUPPORT EQUIPMENT AND FACILITIES COMPRISES THE REMAINDER OF THE WTCV APPROPRIATION REQUEST. IT INCLUDES PROCUREMENTS LESS THAN $2M, REGIONAL MAINTENANCE TRAINING SITE EQUIPMENT, AND PRODUCTION BASE SUPPORT.

## PROCUREMENTS LESS THAN $2M

$1M HAS BEEN REQUESTED FOR THE PROCUREMENT OF VEHICLE ORGANIZATIONAL SHOP EQUIPMENT AND TOOL SETS TO PROVIDE ORGANIZATION MAINTENANCE PERSONNEL WITH ESSENTIAL EQUIPMENT TO MAINTAIN TRACKED VEHICLES.

$2M HAS BEEN REQUESTED FOR THE PROCUREMENT OF TOOLS AND EQUIPMENT REQUIRED BY MAINTENANCE PERSONNEL FOR SMALL ARMS, MORTARS, AND ARTILLERY SYSTEMS.

## REGIONAL MAINTENANCE TRAINING SITE EQUIPMENT

REGIONAL MAINTENANCE TRAINING SITES PROVIDE THE RESERVE COMPONENTS WITH A REGIONAL TRAINING ENVIRONMENT IN WHICH TO PROVIDE INDIVIDUAL MAINTENANCE TRAINING AND SUSTAINMENT TRAINING OF MAINTENANCE PERSONNEL. THEY CONCENTRATE INSTRUCTORS, EQUIPMENT, DEVICES, COMPONENTS, AND END ITEMS TO CONDUCT MAINTENANCE COURSES. THERE ARE A TOTAL OF 21 REGIONAL MAINTENANCE TRAINING SITES PROVIDED FOR IN THE 1983 DEPARTMENT OF THE ARMY MANAGEMENT ACTION PLAN WHICH PRESCRIBED ACTIONS TO CORRECT RESERVE COMPONENT MAINTENANCE MILITARY OCCUPATIONAL SKILL READINESS PROBLEMS. $10.3M IS REQUESTED IN FY91 TO PROCURE ABRAMS AND BRADLEY ENGINES, TRANSMISSIONS AND OTHER COMPONENTS FOR THESE TRAINING SITE MAINTENANCE CENTERS.

## PRODUCTION BASE SUPPORT

PRODUCTION BASE SUPPORT FOR TRACKED COMBAT VEHICLES PROVIDES FOR THE REHABILITATION AND REPLACEMENT OF INDUSTRIAL PLANT EQUIPMENT AT THE M1A1 TANK PRODUCTION FACILITIES, MODERNIZES THE MAINZ ARMY DEPOT FACILITIES, PROVIDES REPLACEMENT AND INITIAL DEPOT MAINTENANCE PLANT EQUIPMENT AND PROVIDES FOR THE LAYAWAY OF INDUSTRIAL EQUIPMENT IN EXCESS TO CURRENT REQUIREMENTS. IN FY91 WE ARE REQUESTING $83.2M TO ACCOMPLISH THIS IMPORTANT MISSION. IN FY91 THE BUDGET REQUEST INCLUDES $62.6M FOR THE LAYAWAY AND MAINTENANCE OF THE DETROIT ARSENAL TANK PLANT IN 1991.

WEAPONS AND OTHER TRACKED VEHICLES PRODUCTION BASE SUPPORT PROVIDES FOR PRODUCTIVITY IMPROVEMENTS AT WATERVALIET AND ROCK ISLAND ARSENAL; MODERNIZATION AND SUPPORT FOR ABERDEEN PROVING GROUNDS, YUMA PROVING GROUNDS, ETHAN ALLEN FIRING RANGES, AND THE ARMAMENT RESEARCH AND DEVELOPMENT CENTER; PROVIDES FOR INITIAL AND REPLACEMENT DEPOT MAINTENANCE PLANT EQUIPMENT; AND PROVIDES FOR LAYAWAY OF INDUSTRIAL EQUIPMENT EXCESS TO CURRENT PRODUCTION REQUIREMENTS. THE FY91 BUDGET REQUEST OF $17.4M PROVIDES FOR THE ACCOMPLISHMENT OF THESE ACTIVITIES.

MR. CHAIRMAN, WE RECOGNIZE THE AUSTERE FUNDING ENVIRONMENT THAT FACES US AND WE CONTINUE TO EXERCISE FISCAL RESTRAINT AND MANAGEMENT POLICIES TO MAXIMIZE THE VALUE RECEIVED FOR THE FUNDING WE ARE REQUESTING. THESE POLICIES INCLUDE DILIGENTLY SEEKING THE SAVINGS INHERENT IN MULTIYEAR CONTRACTS AND CONTINUALLY REVALIDATING OUR REQUIREMENTS.

WE APPRECIATE YOUR INTEREST IN AND SUPPORT OF THESE IMPORTANT ARMY PROGRAMS VERY MUCH. WITH THE CONTINUED SUPPORT OF THIS COMMITTEE WE ARE CONFIDENT THAT WE CAN MEET THE GOALS OF THE ARMY BY EQUIPPING OUR GROUND FORCES SO THAT, IF NECESSARY, THEY CAN FIGHT AND WIN ANYWHERE IN THE WORLD.

THIS CONCLUDES MY PREPARED STATEMENT.

## M1 TANK PROGRAM

Mr. MURTHA. Let's talk about the tank budget.

We just got a letter from Mr. Darman saying that the deferrals were being withdrawn. If I remember correctly, the budget proposed to transfer the deferrals to pay for the tanks in fiscal year 1991. That is gone. How do we pay for the tanks if the money is not there?

General CERCY. I can't answer that question, sir.

The tanks are not the only program. The F-15 is a much higher level than I can respond to, sir.

Mr. MURTHA. Do you feel confident and secure that if we mothball the two tank plants, we will be able to get skilled personnel, uniquely skilled personnel, welders, and so forth, and attract them back to the plants after they have been closed down for several years?

General CERCY. Sir, it is going to be difficult to do that. I have visited both plants. I talked to the welders and am knowledgeable of the qualifications they gain as they work there. Some of them are certified in up to eight different welding techniques. It takes weeks to go through those courses to get those qualifications.

Mr. MURTHA. That is the only place that some of that type of welding is done?

General CERCY. That is unique to the heavy metals used in production. That is correct.

Mr. MURTHA. What is your tank inventory now?

General CERCY. At the end of this procurement, we will have 7,789 M-1s or better, tanks in the force.

Mr. MURTHA. That is the end of the 1991?

General CERCY. Yes, sir. In addition to that, we have over 5,000 M60A3's in the force today. We are talking over 12,000 tanks total, sir.

Mr. MURTHA. Do you consider this inventory to be adequate to respond to any threat you may have?

General CERCY. Sir, the force structure that I mentioned in my opening statement that we are going to have a smaller Army over the next five years, this size of tank force meets the demands of that force structure. As far as being comfortable responding to the threat, that is the reason that we want to build the M1A2 and produce 62 of those to qualify the production line and do the operational testing with those so that if something does happen while we are building the Block III for the turn of the Century, we can build the Block II tank and have the most effective tank to go against the enemy.

### TANK PLANT CLOSURES

Mr. MURTHA. All right.

Under the current plans, when will you close down these factories?

General CERCY. Sir, Assembly in Detroit could close anywhere from September in 1991 on into the spring of 1992, and Lima would finish their last deliveries, I believe it is in the spring of 1993.

Mr. MURTHA. What will it cost to put these plants in mothballs?

General CERCY. Sir, we have contracted a study at this time that is working on that. Some of the immediate work that have been done looking at it says that it costs in the neighborhood of $600 million to close those tank plants and all the plants that are associated or dependent upon that business.

Mr. MURTHA. Are you mothballing only the tank plants or are other plants to be mothballed also, for engines, spare parts, and so forth?

General CERCY. Not in terms of mothball. But as far as business is concerned, obviously a major effect on their business.

Mr. MURTHA. How will you be able to buy parts you need to support spares, etc. What do you do about the engines? Will you put that plant in lay-away? What happens to the plant that produces the engines?

General CERCY. We have the same problem with the engine plant.

Mr. MURTHA. Where is that?

General CERCY. Stratford, Connecticut.

Mr. MURTHA. What is going to happen to the plant?

General CERCY. The only thing we can do is continue to produce spares at a lower rate for the force that exists today. We would not put new engines in new tanks, obviously, because we have no new tanks.

There continues to be a need for the training and maintenance people, and so forth, and also for some of the other testing that would be going on for any product improvements, and so forth.

Mr. MURTHA. Are you going to close it down or keep it open?

General CERCY. We would try to keep it open, sir, but it is a minimum amount of requirement that would be available.

Mr. MURTHA. What else will you have to close down if you close down the M-1 plant?

General CERCY. Sir, there are some 10,000 vendors involved in the production of tanks.

Mr. MURTHA. Ten thousand?

General CERCY. Yes, sir. How many of those can get other business similar some place else, I can't comment on right now. Obviously it is a very large effect across the nation.

Mr. MURTHA. Give me, for the record, the number of plants that will be laid away or mothballed in conjunction with closing the tank plants.

General CERCY. Sir, I think I can answer that now. Scranton for the suspension.

Mr. MURTHA. What was that?

General CERCY. Scranton.

Mr. MURTHA. Scranton?

General CERCY. Yes, Sir, Pennsylvania. Sterling for electronics.

Mr. MCDADE. What state was that?

General CERCY. Sterling for electronics, sir. Of course, it would have a major effect on our own arsenals. The Allison transmission division also in Pennsylvania, sir

Mr. MURTHA. I assume you could go right back and start these right up again? If you closed them down, you could just take the bar off the door and open it right back up again?

General CERCY. Sir, we estimate if we go to total closure, we are probably talking about two years or better to come back up to production from the time we say we want to start again.

Mr. MURTHA. Of course, you lose the advantage of selling any foreign production models to anybody?

General CERCY. Yes, sir, that is a risk in the interim period.

### M1 TANK PRODUCTION ALTERNATIVES

Mr. MURTHA. What would it cost? Do you have a cost figure for restarting the tank production?

General CERCY. The cost to restart is going to be over a billion dollars. We have made an up-front comparison. As I say, a study is going on now. We will have the details this summer. In general, to close down the tank production and then to bring it back up some three or four years later is a cost somewhere just under $2 billion. The best way we can figure to try to continue production at a rate that would allow tanks to be competitive on the foreign military sales market in that interim period runs us just under $4 billion under the same period of time.

Mr. MURTHA. I wish you would look at the possibility of, say, producing ten tanks per month and then give us a schedule of what that would mean for foreign sales and what it would cost per tank and how much possibility you have of doing that.

I see this as a serious loss to our industrial capabilities in the United States. I have to admit that it is unlikely that a war will break out tomorrow where we are going to have to produce tanks. Fifteen thousand tanks is a lot of tanks. On the other hand, I see us almost losing the ability to respond in a short period of time if we were to close down these plants. Then, of course, we also will be losing all ability for foreign sales.

General CERCY. Yes, sir, we will do that.

### TANK GUNNERY COMPETITION

Mr. MURTHA. Several years ago when the M-1 was called the XM1, I went to Aberdeen. They wanted to show me how accurate it was. I remember sitting there up in a tower and they had a television set. The tank was sitting there and 1,000 meters away or 2,000 meters away there was a stationary target. They wanted me to watch this target. They said, "Watch this target." It was on a television screen. They fired one round, nothing happened. They fired another round, nothing happened. They didn't know what happened. So, we went to lunch, came back and found out they had used the tank in a parade they day before and put a new barrel in it, but they forgot to bore sight the new barrel. Then they allowed me to fire the next two rounds. I still have the target.

I hit the target right in the center two times in a row. But, this tank is described as the finest in the world. Yet, it placed fifth in last year's Canadian tank gunnery trophy contest. Is that because they didn't bore sight. What is the problem up there?

General CERCY. Sir, I can't answer that question directly. I do know the Canadian Army trophy involves a lot of things in that competition. There are many opportunities for various things to go wrong, not the least of which is the training methods that are used, and so forth. I really can't comment on details as to what the specific cause was. I don't know it to be that they did not bore sight.

Mr. **Murtha**. Is this tank still considered the best in the world only by us or are there other people that think the same thing?

General **Cercy**. I think other people think the same thing, too.

Mr. **Murtha**. Mr. McDade?

### MANPOWER FOR TANK PRODUCTION

Mr. **McDade**. Thank you, Mr. Chairman.

Welcome, General. Glad to have you before the committee again. You were answering the Chairman's questions about start up cost. That did not include the cost of work force retraining, learning curve, et cetera?

General **Cercy**. Yes, sir, it does.

Mr. **McDade**. How many man hours—when you talk about closing and restarting, how many man hours are you using to calculate the cost of producing a tank?

General **Cercy**. Right now Detroit employs about 1,250 people. Lima Army tank plant employs about 2,500 people. Those numbers I know. I don't know the exact number of the other plants that I mentioned. That gives you a feeling for the number of people that we are talking about.

And then the skills involved, the hard machining skills and welding skills, and so forth, that the Chairman mentioned, in a plant like Detroit run about 750 of those. You would have to go out and either find that again, or train it up somehow. As I said, we have contracted for a study right now. I really don't have the details. This is a very rough estimate I am telling you of the $600 million to close and something under $1.4 billion to start up again.

Mr. **McDade**. I have heard figures that it is something like 4,500 man hours to make a tank today. Do you know whether that figure is accurate or not?

General **Cercy**. I heard that figure when I was out at the plant, and I don't remember if that is the correct number or not.

Mr. **McDade**. Do you have those figures?

General **Cercy**. No. I can get that for you for the record.

Mr. **McDade**. Okay.

[The information follows:]

It is estimated that 11-12,000 man hours are required at the major vendor level to produce a tank, and an additional 5-6,000 man hours at the subvendor level.

Mr. **McDade**. It would be useful, I think, to put in the record what the current requirement man hour is and what it would be if you left this, if you left it and started a new one. When you answered the Chairman's question in terms of $2 billion or something like that and you are now studying really more deeply the impacts, you have got sort of a single source mobilization base that has been the tank producer for the nation from day one.

You dissipate that labor force and dissipate those skills that are unique, and you have a heck of a time recapturing the kind of, I don't know whether to call it skilled machinist or skilled welders, or whatever, to come back and redo it; don't you?

General **Cercy**. Yes, sir, you do.

Mr. **McDade**. How can you put a dollar figure on that?

General **Cercy**. All you can do is estimate, it is very difficult. What does it take to go out and recruit that type of work force, and so forth? You know what it costs to train. There is always that question up front of where are they and how do you get them and what does that cost.

Mr. **McDade**. When you take a learning pyramid that represents the production of that tank, you have got 50 years of people involved in a single business doing it.

General **Cercy**. Yes, sir.

Mr. **McDade**. You could stop and go somewhere else and somebody could do something, but that pyramid would be gone.

General **Cercy**. Yes, sir.

Mr. **McDade**. There are 1.5 miles of welds in a tank?

General **Cercy**. Sir, there are approximately 1.5 miles.

Mr. **McDade**. Is that accurate?

General **Cercy**. I think so.

Mr. **McDade**. How many of them are done by robot?

General **Cercy**. Right now there is a good bit of it done robotically. Those machines have been installed, some fairly sophisticated welding machines in Lima now for some time. As a matter of fact, plans were to even put more in and do more by computer control of robots had we continued the tank production.

Mr. **McDade**. Any idea how many people in the work force are classified as welders that do that?

General **Cercy**. It is within that 750 number I gave you at Detroit, but that also includes machinists.

Mr. **McDade**. Is that in addition to the smart tooling you are using for welding purposes?

General **Cercy**. Yes, sir.

Mr. **McDade**. Why do you have 750 welders and also the robots.

General **Cercy**. 750 includes the machinists and welders.

Mr. **McDade**. Give us an idea in the record of the skilled individual and robot, and then the question would be whether or not you can replace all of those people by a smart tool at some point. And if so, when you get to that.

[The information follows:]

There are currently 675 welders employed at Lima Army Tank Plant to manufacture an average of 60 tank structures per month. It takes from one to three years of procurement and production leadtime (depending on complexity) to develop and install advanced welding machinery such as robotics. Capital investment is relatively high and sufficient production volume would be required to offset the investment. Currently there are no plans for such capital investments because of the termination of the Abrams production program.

## TANK UPGRADES

Mr. **McDade**. In an earlier hearing when General Pihl was here, he suggested an alternative to continued tank production might be to up-gun the M-1 tanks currently equipped with the 105 gun.

How many tanks does the Army have with the 105?

General **Cercy**. 3,500, sir.

Mr. **McDade**. And the proposal, as I understand it, is perhaps take that and put it up to a 120?

General **Cercy**. Yes, sir, that is correct.

Mr. McDade. What would such an up-gunning program cost? Over what period of time would it take place?

General Cercy. Sir, we have just asked our program executive officer to get us those numbers. He has just started on that task. I can't give you an answer yet.

Mr. McDade. Do you have a time frame when you will know?

General Cercy. Hopefully by mid April.

Mr. McDade. We will need to be privy to the knowledge to make some judgments about it.

General Cercy. I understand.

Mr. McDade. Can you tell us what impact a program like that might have on current M-1 production if it were to be carried out? What would it do to the M-1 production base, et cetera?

General Cercy. Well, first of all, I think it would incorporate many of the same skills and much of the same machinery we talked about before.

Mr. McDade. Would it keep the base warm?

General Cercy. Not totally probably, but, yes, I think in a general sense, yes.

Mr. McDade. Is it an accurate statement to say if you decide you want to do this that you then have an opportunity to do foreign military sales, et cetera, to keep the plant going, keep the base running?

General Cercy. Yes, sir. I think the idea is as opposed to the U.S. buying new tanks that really don't fit the reduced force structure, that you can still use that facilitization that is there and most of the resources that are with it to go ahead and do a modification program like this concurrent with production for foreign military sales.

## MINIMUM SUSTAINING RATE FOR TANK PRODUCTION

Mr. McDade. Okay. Last year General Chen indicated to us that the minimum sustaining rate to keep one tank plant open was 516 production models for one plant. We are now being told that the production rate of 360 per year or maybe even fewer would be sufficient. The question is, has the Army changed its opinion on the minimum sustaining rate for tank production?

General Cercy. Minimum sustaining rates are interesting numbers. Dependent on how the plant is facilitized, the minimum rate varies. We just did, or are in the process of completing improvements at Lima that are going to raise its capabilities up to 120 M1A1 hull and turret structures tank per month which will raise what that minimum rate is, again, it depends on what you have invested in that facilitization.

Mr. Murtha. How much of an investment is a Lima?

General Cercy. I can't answer that, but I will get it for the record.

[The information follows:]

The present replacement value at Lima Army Tank Plant to include land, physical facilities, and machinery is $629.8 million (FY 1990 constant dollars).

Mr. McDade. You are comfortable that 360 is a reasonable number, it might even be fewer than that for minimum sustaining rate at one plant?

General Cercy. That number is geared more to, what the cost would be of individual tanks and if that cost would still be competitive on the international market. We are talking tanks in the order of $4.7 million a copy.

Mr. McDade. You are talking of a cost of $4.7 million?

General Cercy. $4.7 million, depending on how many tanks we will produce.

Mr. McDade. And the question of whether you have got FMS's and everything else in it?

General Cercy. Yes, sir. I think the hypothetical case we have talked about so far today is something on the order of ten U.S. production per month. Then that is supplemented, by the foreign military sales. If we are going to do this other work modification, that would put a new variable——

Mr. McDade. I guess what we need to have you do is to give us a number based upon U.S. production rate and also the up-gunning as one scenario, and then the third one being those two with a combination of foreign military sales and give us a number.

General Cercy. Yes, sir.

Mr. McDade. Any other factors that ought to go into that equation that I am not asking you?

General Cercy. Well, I guess as far as the Army is concerned, there are some things we would like to consider. If we were going to do a modification program we would wait to consider some of the type improvements that we were looking for in the Block II; commander's independent thermal viewer, and so forth whether one could put those into a modification program as well so that you come out with an M–1 plus.

Mr. McDade. Do that as another scenario for us. Hit that number and tell us what you see to be based on the various scenarios, what the minimum sustaining rate might be.

General Cercy. Yes, sir.

[The information follows:]

To paraphrase the question, the following is a projection of the unit weapon system cost and TOA requirements for the following scenarios:

120/year M1A2 production (US/FMS combination).
240/year M1A2 production (US/FMS combination).
360/year M1A2 production (US/FMS combination).
360/year M1 to M1A2 retrofit.
360/year M1A1 to M1A2 retrofit.

Assumptions made for computations are that all work is done at one tank plant, utilizing single year contracts, the FY 1991 Presidential Budget Submit quantity remains unchanged, and production rates are adjusted beginning in FY1992 requiring additional advance funds in FY1991 for FY 1992 tanks.

### TOA REQUIREMENTS

[ESC in millions of dollars]

| Production alternatives | Fiscal year— | | | | |
|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1995 |
| 120/year | 942.0 | 817.6 | 840.7 | 864.9 | 848.6 |
| 240/year | 1033.8 | 1298.6 | 1332.3 | 1375.2 | 1385.7 |
| 360/year | 1102.2 | 1652.4 | 1692.9 | 1750.8 | 1788.2 |

These numbers are not broken out by U.S. and Foreign Military Sales (FMS) as any FMS will reduce the U.S. costs by a proportionate amount based on the number of tanks per year sold. The Egyptian co-production effort benefit is already factored into the costs.

### UNIT RECURRING WEAPON SYSTEM COST

| WSC alternatives | Fiscal year— | | | | |
|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1995 |
| 120/year | N/A | 6.8 | 7.0 | 7.2 | 7.2 |
| 240/year | N/A | 5.4 | 5.5 | 5.7 | 5.8 |
| 360/year | N/A | 4.6 | 4.7 | 4.8 | 5.0 |
| 516/year | N/A | 3.8 | 3.9 | 4.2 | 4.2 |

### CONVERSION ALTERNATIVE

There are currently studies ongoing to determine the cost of converting and retrofiting older M1 tanks to an M1A2 or to an M1A1 with some Block II improvements. If in the future it is determined that the U.S. will require the M1A2 tank in quantity, the retrofit option will be considered as well as new production.

Mr. McDADE. If the Congress is able to find the funds to continue production at some minimum rate, those tanks would probably have to be produced at the Lima, Ohio, assembly plant. What would you do with the Detroit tank plant in that event? Where would you manufacture the components that only the Detroit plant now makes?

General CERCY. That question is being put to the contractor. Right now, as I believe you recognized, there are 36 different parts made at Detroit, and they are not made anywhere else. Those machining operations are done there. It is a question of taking those machines and moving them to Lima or to some other place where one might make those parts, or leave them in place.

### M1A2 TANK COST

Mr. McDADE. What would it cost on a unit and the total cost basis to produce 360 M1A2 tanks per year?

General CERCY. Sir, would you repeat that question?

Mr. McDADE. What would it cost on a unit and total cost basis to produce 360 M1A2 tanks per year? You can put that in for the record, if you like.

[The information follows:]

Following is the TOA required to procure 360 M1A2 tanks per year and the unit recurring weapons system cost (WSC) for FY 1992-FY 1995. It takes into consideration the Egyptian coproduction effort and assembly at one tank plant:

[In millions of dollars]

| | First year— | | | |
|---|---|---|---|---|
| | 1992 | 1993 | 1994 | 1995 |
| 360/year TOA | 1652.4 | 1692.9 | 1750.8 | 1788.2 |
| (Esc $) WSC | 4.6 | 4.7 | 4.8 | 5.0 |

Mr. McDADE. Tell us what it would cost on a unit and total cost basis to produce 240 or 120 M1A2 tanks per year?

What additional annual cost would the Army incur by continuing to produce M1 tanks at such rate, such as operating costs? Put that in the record, would you?

General CERCY. Yes, sir.
[The information follows:]

The TOA required to procure 240 and 120 M1A2 tanks per year and the unit weapons system cost (WSC) for FY 1992–FY 1995, and which takes into consideration the Egyptian coproduction effort and assembly at one tank plant:

[In millions of dollars]

| | First year— | | | |
|---|---|---|---|---|
| | 1992 | 1993 | 1994 | 1995 |
| 240/year TOA | 1298.6 | 1332.3 | 1375.2 | 1385.7 |
| (Esc $) WSC | 5.4 | 5.5 | 5.7 | 5.8 |
| 120/year TOA | 817.6 | 840.7 | 864.9 | 848.6 |
| WSC | 6.8 | 7.0 | 7.2 | 7.2 |

Mr. McDADE. Thank you.

## M88A1E1 IMPROVED RECOVERY VEHICLE

Mr. DICKS. Last year Congress directed the Army to complete technical and operational testing of the M88A1E1 improved recovery vehicle and to acquire the technical data package. The committee also directed the Army to report on the nature and extent of deficiencies in current approved recovery practices and procedures. The report was to provide a long-range corrective program and budget plan, or in the absence of such a plan an assessment from the JCS of the impact of the current practices on battlefield operations. The report was to be submitted before the end of this month. What is the status of this report? Can you summarize it at this point?

General CERCY. Sir, the report has just come in to the Department of the Army. I have not myself seen it yet. I know in fact that the study was done. To complete the testing, we found that it would cost more than the $15 million of fiscal year 1989 funds that you had indicated. And we, in fact, are planning a $7.2 million additional reprogramming to complete those tests. The report, as I say, just came into the building. We will be getting that to you shortly.

Mr. DICKS. The committee directed last year that $15 million in prior year M88A1E1 procurement funds be used for the mandated testing program. What is the status of this testing program?

General CERCY. That is what I just mentioned, sir. We estimate it will cost $22.2 million. You have to add the $7.2 million, yes, sir. That test then would be planned to be conducted from January to November of 1991, and we would have the report available in January of 1992 with the opportunity to go ahead with the TDP at that time.

Mr. DICKS. A recent milestone chart provided to the committee staff shows that a contract award is not expected until September of this year. What is the problem?

General CERCY. Sir, is this—are you still——

Mr. DICKS. Why did the schedule slip?

General CERCY. I don't know of any.

Mr. DICKS. Why is it taking so long to get started on testing?

General CERCY. Well, sir, first of all, to get the report done, as I say, it just came in now to the Department of the Army.

Mr. DICKS. What does that have to do with the testing?

General CERCY. To show us how much it is going to cost and how we are going to do it, and so forth, and where.

Mr. DICKS. The study wasn't on testing. It was how we were going to meet the requirement.

General CERCY. To reprogram the $7.2 million also, sir.

Mr. DICKS. To do testing?

General CERCY. Yes, sir.

Mr. DICKS. That doesn't have anything to do with the requirement, General.

General CERCY. I am sorry, sir. I guess I don't understand the question.

### M88A1E1 PROTOTYPE TESTING

Mr. DICKS. There are two issues here. One is the testing which was underway. We have to do the testing so we know where we are on the M88A1E1. The other question is, is there a legitimate requirement out there that the Army's decision leaves unmet. What we are trying to do is get an understanding of where we are on testing, what has been done up to this point and then we want to know about the report about the requirement. Can I make it any clearer than that?

General CERCY. No, sir.

Mr. DICKS. Thank you, General.

General CERCY. Sir, may I respond?

Mr. DICKS. Yes.

General CERCY. There are five prototypes that need to be refurbished to do the testing. That is the long pole in the tent at the moment as far as time is concerned on the testing.

Mr. DICKS. And what is the status of the testing? We don't know?

General CERCY. No, sir.

Mr. DICKS. With the termination of the M88A1E1, the Army has no vehicle to recover the M1A1 tank on a slope. What plan is the Army making for recovery of the Block III tank?

General CERCY. Sir, the Block III tank has a weight goal to keep it down to 55 tons. We hope to have a different problem at that weight than we have right now. The problem we have right now is the weight of the tank. The M88A1 requires another vehicle as a dead weight when you are moving on a slope to control towing the vehicle. We hope we would not have that problem with the Block III tank in the Armored Systems Modernization program.

### M1 TANK PRODUCTION COSTS

Mr. DICKS. If we decided to continue M1 production at the same rate as last year and that we would not prepare for termination, how much money would be required in fiscal year 1991?

General CERCY. Sir, I will get that for you for the record. Just off the top of my head, right now our 1991 request is $700 and some million. We are talking over $1 billion to do the procurement at the rate that we did it last year.

Mr. DICKS. How much would be required to continue a steady state production number for the next five years? You can do that for the record as well.

[The information follows:]

To continue production at the current rates for the next five years would require the following funding levels:

| | Fiscal year— | | | | |
|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1995 |
| M1A1 | 219 | | | | |
| M1A2 | 297 | 516 | 516 | 516 | 516 |
| TOA | 1999.1 | 1975.1 | 2046.5 | 2163.3 | 2139.2 |

Requirements are based on the August 1989 Defense Acquisition Board approved M1A2 configuration, single year contract, and one plant assembly at the current Minimum Sustaining Rate.

## M1A2 TANK

Mr. DICKS. The fiscal year 1991 procurement budget includes $178.3 million for the Block II tank commonly referred to as the M1A2. Last year $126.5 million was appropriated in procurement for this program. However, the current budget justification show that only $59.6 million will actually be used in fiscal year 1990. What happened?

General CERCY. Sir, I will provide that for the record.

[The information follows:]

The changes in Block II funding requirements were caused by decisions made as a result of programs termination following the FY 1991 procurement buy. Following is a synopsis of the Block II Mods lines in the January 1989 and January 1990 P-22 Exhibit forms:

[In millions of dollars]

| | Fiscal year— | |
|---|---|---|
| | 1990 | 1991 |
| January 1989 Procurement-form submit | 126.5 | 190.0 |
| January 1990 Procurement-form submit | 59.6 | 178.3 |

The January 1989 P-form submit was based on a procurement of 261 M1A2s, delivery cut-in of April 1992, a multiyear contract and a 516 tank/year minimum sustaining rate.

[In millions of dollars]

| | Fiscal year— | |
|---|---|---|
| | 1990 | 1991 |
| One time costs | 126.5 | 58.8 |
| Hardware | 0 | 131.2 |
| Total | 126.5 | 190.0 |

The January 1990 P-form submit is expanded as follows:

[In millions of dollars]

| | Fiscal year— | |
|---|---|---|
| | 1990 | 1991 |
| One time costs | 59.6 | 106.7 |
| Hardware | 0 | 71.6 |
| Total | 59.6 | 178.3 |

There was a $19 million total requirement decrease for the one time costs, and a shift of those requirements from FY 1990 to FY 1991, because the follow-on contract for the basic M1A1 is a Single Year vs. Multiyear, creating a funding shortfall in FY 1990. To avoid this 1990 M1A1 funding shortfall, previously earmarked Block II nonrecurring funds are being used, and the nonrecurring requirements are shifted into FY 1991. This is possible due to the M1A2 delivery slippage from April 1992 to November 1992, which allows later procurement of nonrecurring requirements such as hard tooling, test equipment, etc. The hardware requirements have increased (when computed on a unit cost basis) due to fewer tanks procured (loss of learning curve effect), loss of multiyear prices, lose of NTE prices, and a production rate which is only 50 percent of the minimum sustaining rate.

Mr. DICKS. What will the fiscal year 1990 and 1991 funding procure?

General CERCY. Sir, the Block II is in full-scale development at this time, and it is being payed for from the RDT&E appropriation account. The initiation of testing will occur during this period of time prior to the actual production.

Mr. DICKS. This is procurement money?

General CERCY. No, sir.

Mr. DICKS. Are we testing with procurement money these days?

General CERCY. No, sir. I got my subjects mixed up because the production isn't scheduled to start, but it is funded this year. So, it is production of 62 tanks that we are talking about.

Mr. DICKS. Are these long lead items in 1990?

General CERCY. Sir, are we talking fiscal year 1990 money or fiscal year 1991 money?

Mr. DICKS. 1990 and 1991.

General CERCY. Long lead in 1990 and production in 1991 for 62 Block II tanks.

Mr. DICKS. How much is included in the fiscal year 1990 and 1991 advance procurement budgets for the M1A2 and for what purposes?

General CERCY. Sir, let me provide that for the record.

[The information follows:]

There is $245 million in the FY 1990 budget for advance procurement for the Abrams tank, of which $18.7 million are for specific Block II items. The FY 1990 advance procurement is required for track, Milstrips (GPF), Basic Issue Items, Final Drives, Block II, Gun Mounts, Gun, Fire Control, Engine and Basic Vehicles. There are no funds in the FY 1991 advance procurement budget line due to program termination following the FY 1991 procurement buy.

Mr. DICKS. How is the M1A2 tank different from the current configuration and what benefits are derived from these changes?

General CERCY. Sir, the Block II tank will have the commander's independent thermal viewer so he can search for targets separate from the gunner while the gunner is engaging targets. It will have a new improved commander's weapon station which gives him better armor protection, he, the commander, while they are in battle. It will have an electronic data bus system which will make it less vulnerable when it is hit by enemy fire as far as the electrical wiring and so forth that is involved. We are looking at the possibilities of a positive navigation system for the tank, as well, sir.

Mr. DICKS. What is the cost to the M1A2 compared to the current configuration at comparable production rates?

General CERCY. A figure about $4.7 million versus $3.5 million. $4.7 for the Block II versus $3.5 for the M1A1 in fiscal year 1991.

Mr. DICKS. What are the current milestones of the M1A2 development program?

When is the Milestone III production decision scheduled?

General CERCY. The Milestone III A production decision is in the first quarter of fiscal year 1992. Testing prior to that starts at the end of fiscal year 1990. I think those are the major milestones between now and then.

### M1A2 TEST AND EVALUATION MASTER PLAN

Mr. DICKS. An M1A2 test and evaluation master plan was submitted by the Army to OSD last March. DOT&E disapproved a revised plan submitted in July. Does the Army yet have an approved plan for the M1A2?

General CERCY. No, sir, we are still working that revision with OSD, I believe.

Mr. DICKS. Any ideas whether it will be done?

General CERCY. The Milestone IIIA production decision is in the

Mr. DICKS. Given the limited production quantity for the M1A2, will you ever be able to achieve the cost cap which OSD has placed on the M1A2 of $3 million?

General CERCY. Sir, we are bound to that. That is what we are working on. Yes, sir.

Mr. DICKS. I thought it was $4.7 milion you just testified?

General CERCY. The $3 million figure we will not be able to meet for production of 62 tanks. No, sir.

Mr. DICKS. It is going to take a much larger procurement.

General CERCY. Yes, sir.

Mr. DICKS. What was the unit costs of the M1A2's recently quoted to the Saudis?

General CERCY. I would have to get that for the record, sir. I don't know what that number was.

[The information follows:]

The U.S. offer/position on the sale quoted for planning purposes in mid-February 1990 was a unit cost of $5 million/M1A2 tank. It was pointed out to the Saudis at the time that this figure was only a cost estimate and could change.

Mr. DICKS. We think it was $5 million, but you can check.

General CERCY. I have seen that figure in the press, but I don't know if that is the right figure.

Mr. DICKS. In November of last year, the GAO issued a report titled "Block II modifications not ready for production". Please respond to the following questions relative to that report.

Have you read the report?

General CERCY. Yes, sir, I have read the major portions of it.

Mr. DICKS. Is it true that the current Block II tank does not have all the survivability, fightability and lethality enhancements that were assumed to be available when the Army conducted its cost and operational effectiveness analysis?

General CERCY. Sir, the Block II tank design is survivable against mid-term threat through the turn of the century, up until the envisionment of the Block III, of the Soviet FS3 tank.

Mr. DICKS. You are saying it does not have all the survivability, fightability and lethality enhancements that were assumed to be available when the Army conducted its cost and operational effectiveness analysis?

General CERCY. Sir, I can't comment on what was assumed to be available. It meets the Army's requirements as far as what it was designed for.

Mr. DICKS. You disagree with the GAO report?

General CERCY. Yes, sir, in that regard, I do.

### M1A2 CHANGES

Mr. DICKS. How much will the Block II changes add to the weight of the tank?

General CERCY. Sir, the Block II—right now the M1A1 fully combat loaded comes in at 65 tons and the M1A2 at 69.5, four-and-a-half tons basically.

Mr. DICKS. What is the Army doing to keep the weight of the tank below 69.5 tons and when will the results be known?

General CERCY. Sir, we have a weight reduction program that is ongoing at this time. It is one of those things where you continue to work the thing little by little. It gets tougher the further down you go.

Mr. DICKS. Which Block II items are being incorporated into the prototype vehicles?

Which ones will most likely ultimately go into production?

When will that decision be made?

General CERCY. Sir, the three improvements that OSD approved, the data bus architecture, the commander's independent thermal viewer and the improved commander's weapon station, are the three that will definitely go in potentially, or if we can get the cost down and improve the effectiveness, the positive navigation system may go in as well.

Mr. DICKS. What is the threat which justifies the Block II tank? When is it expected to be fielded?

General CERCY. Sir, the FST2 tank is the predominant threat that indicates Block II would be required. ———.

Mr. DICKS. What specific information do we have to substantiate the assessed threat?

General CERCY. Sir, the threat is agreed to by DIA and CIA, as well as the military intelligence community of the Army.

Mr. DICKS. Is it true that the threat is driving the concurrency in this program?

General CERCY. No, sir, not at this point.

### M1A2 SOFTWARE

Mr. **Dicks**. The electronics package of the tank's digital core, which will integrate the Block II components, has not previously been used in a tank. The Army expects that this package will result in numerous improvements in reliability, survivability, operation and support costs and maintenance.

When will you have data to support these expectations?

General **Cercy**. Sir, we should have data during the test program, which would be in fiscal year 1991.

Mr. **Dicks**. When will the software that drives this package be tested, or has it been tested?

General **Cercy**. Sir, I can answer that for the record.

[The information follows:]

Contractor software bench testing on Line Replaceable Unit (LRU) components began in January 1990, and system level (tank) testing is scheduled to begin in July 1990. Government Qualification testing is scheduled to begin in July 1990 with follow-on system level (tank) testing in January 1991. The software will be continually evaluated throughtout all tank testing.

Mr. **Murtha**. Do you know if there is any problem with the software?

General **Cercy**. No more than any other software development that I know of.

Mr. **Murtha**. It used to be people would say "no it's just a software problem". But software is a major reason that the C-17 has been held up.

General **Cercy**. Yes, sir, that is why I answered it the way I did. The early stages of—pardon?

Mr. **Dicks**. By not answering it at all?

Mr. **Murtha**. Do you have enough people working on it? Are there people working on the problem? One of the major things we found with the C-17, they had 35 people working on a major system. They finally had to fire one company and go to another. The Air Force knew it was a problem. Are you concentrating on getting something done there, trying to overcome the problem, contracting work on it?

General **Cercy**. Yes, sir, they are behind schedule at this time and emphasis is being put on it. That is all I can say.

Mr. **Murtha**. It is going to cost us millions of dollars in mistakes that McDonnell-Douglas made with that C-17. You are not going to let that happen with the software in this program?

The Air Force told me the same thing. The Air Force said we prodded them. In the meantime, they were a year late and costing us all kinds of money. We cannot have that. We have to have better control of the program where the Government is paying for it. You have got to—well, you have got to more than prod them.

General **Cercy**. Sir, I am sure we have enough people on it.

Mr. **Dicks**. Give us a good status report on software for the record.

[The information follows:]

The M1A2 software effort is on schedule with the current production plans. Two out of three software increments have been released and the third increment is scheduled for June 1990 and will exhibit total tank functionality. The U.S. Army does not assess the M1A2 software as a high risk. The technical personnel managing the program are highly experienced in software development. General Dynamics

Land Systems (GDLS) has assembled a staff with experience on the F-16, Apache, and Army Robotics Vehicle programs. These programs have similar software architectures, and lessons learned are being applied to the M1A2. The M1A2's design, both hardware and software, is robust and loosely coupled, allowing for problems to be resolved at a sub-system level, thus reducing integration risk. This design incorporates a distributed processing architecture coupled with a deterministic MIL-STD-1553B data buss. The majority of the software is written in ADA with a high degree of commonality within the distributed functions. ADA and its development tools provides a structured means to design and code the software, while commonality reduces the amount of unique code necessary. The user (Ft. Knox soldiers) have been directly involved in developing the requirements for software functionality in interfacing with the tank. This process, known as SMI (Soldier Machine Interface), insures the design of the software will be usable and acceptable to the troops. Currently the M1A2 software design is almost completed with software being integrated in the GDLS software integration lab. System level control has been demonstrated as well as many of the lower level software functions of individual elements (graphic drivers, data transfers and handling, and mode controls). The period from July 1990 through December 1990 will be used by GDLS for contractor system level tank testing to evaluate the system performance prior to delivery of the first prototype tank for Government evaluation in July 1991.

## GAO REPORT ON M1A2

Mr. Dicks. Please comment on the GAO assertion that the operational effectiveness analysis for the Block II tank was based on certain key operational assumptions that are not supported by actual experience.

General Cercy. Sir, I would have to answer that for the record.

[The information follows:]

The Army and Department of Defense do not agree with the GAO finding that the cost and operational effectiveness analysis (COEA) assumptions regarding the tank commander's responsibilities, unit tactics, and armor protection against Soviet munitions do not conform well to real life practices. In effect, the GAO has stated that the Army's models are inadequate.

The models used for the M1A2 evaluation included representations of tactics and employment doctrine that are as accurate as possible. The GAO suggestion that data should have been collected from operational tests and training exercises is not valid due to their ingrained artifical constraints and limitations.

The GAO argument that the tank commander's visual capabilities and responsibilities were ignored in the COEA is also incorrect. The M1A1 tank commander does have difficulty searching for targets, which is in large part corrected by the Commander's Independent Thermal Viewer, a key companent of in the M1A2. M1A2 tank commanders, who are also small unit leaders, will spend a large amount of time acquiring and engaging the enemy during an actual engagement instead of "devoting much of their time to directing the platoon, checking navigation, and coordinating with other units at critical points."

The GAO was incorrect in stating that the ranges used in the model favored the M1A2 because the CITV provides enhanced viewing. It does not provide an enhanced viewer magnification, and the terrain used in the model is representative of the typical FRG terrain.

## Foreign Sales of M1 Tanks

Mr. Dicks. What foreign sales are on the books or anticipated for M1 tanks and how many of these are for the M1A2 configuration?

General Cercy. Sir, the only thing actually on the books right now is the Egyptian co-production on the M1A1. The Saudis are interested in the M1A2. As you know, we have been over to see them, but nothing is on the books yet on that. There is a long list of other countries that are also potentially interested, to include Great Britain, and so forth, but none of those are on the books at all.

Mr. **Dicks**. Since the Army does not actually plan to field the M1A2 tank, what is the impact of our foreign allies and friends having a better tank than we do?

General **Cercy**. Well, sir, we are obviously not thrilled with that. On the other hand, we can't afford to buy more ourselves.

Mr. **Dicks**. Who will pay to establish a logistic support base for the M1A2 tank? How much will this cost?

General **Cercy**. Sir, we will test for that only. I can't give you a figure for how much that would cost. But anyone that does buy it will have to pay for establishing the base.

Mr. **Dicks**. How confident are you that the projected sales will actually materialize, given the changes in the world situation? Please answer that for the record.

[The information follows:]

The Army can only be confident about foreign military sales to those countries with which we have signed agreement (Egypt) or are currently negotiating an agreement (Saudi Arabia). While there are other countries which have expressed an interest in the Abrams tank to varied degrees, the Army cannot accurately predict the probability of success for Abrams tank sales to them. Affordability of the Abrams tank, due to the uncertainties in the program, probably has had just as much of an impact on FMS opportunities as the changing world situation, given the current threat assessment.

Mr. **Murtha**. In your professional opinion, is it a good idea to close down the tank plant?

General **Cercy**. Sir, in the current environment of a lessened threat in Europe and a decreased defense budget, we, the Army, have no choice.

Mr. **Murtha**. Mr. Miller.

Mr. **Miller**. No questions, Mr. Chairman.

Mr. **Murtha**. Any other questions?

### Vehicle Intercommunication System (VIS)

Mr. **McDade**. General, last year's Appropriations Act contained a legislative provision, a law, requiring the Army to expeditiously procure an improved vehicle intercommunication system with a goal of initial contract not later than September 1990. What is the Army doing to comply with that direction.

General **Cercy**. Tests were completed at Fort Monmouth, and Fort Knox, Kentucky. Those test results are being analyzed now. I am expecting a report shortly. I am told we can still meet a September contract date if, in fact, it shows that is the right thing to do.

Mr. **McDade**. What are the current milestones for the program, please?

General **Cercy**. That is basically it.

Mr. **McDade**. Enter a contract in September?

General **Cercy**. Yes, sir.

Mr. **McDade**. What about the acquisition strategy?

General **Cercy**. I would have to answer that for the record.

[The information follows:]

The preferred acquisition strategy for the VIS is to award a competitively negotiated, firm fixed price contract to the vendor that represents the best value to the Government for a Non-developmental Item procurement.

Mr. **McDade**. Do it for the record. Make it short and sweet.

What funding for the VIS is included in the fiscal year 1991 budget? Where is it found?

General CERCY. Sir, there is no funding in the fiscal year 1991 budget for VIS.

Mr. McDADE. Then how are you going to do a contract in September if you have not put any money in the budget to implement it?

General CERCY. Sir, I think——

Mr. McDADE. You want to put that in the record, too?

General CERCY. Okay.

[The information follows:]

It is our intention, if it is determined that VIS is an acceptable and affordable replacement for the current AN/VIC-1 based on the results of the demonstrations being conducted at Fort Monmouth and Fort Knox, to make the funds for the procurement of VIS available from the funds in the appropriate weapons system line as directed in the Congressional Record—House, dated November 13, 1989.

Mr. McDADE. We need to get some answers here from you.

How do you expect to do this? You just testified you are going to do a contract in September. Do you have a funding source behind it?

General CERCY. You indicated for us to use $10 million for this, last year and the rest of the money to come out of the vehicle line. That is where we would fund it from the vehicle line itself.

Mr. McDADE. You would fund it out of the vehicle as a cost to the tank?

General CERCY. Yes.

Mr. McDADE. What would be the cost for the procurement of VIS for Bradley Fighting Vehicles and M1s funded in fiscal year 1990 in the 1991 budget? What would be the cost to buy VIS for Bradley and for M1 fiscal year 1990, fiscal year 1991?

General CERCY. I can't give you a total cost, but the cost per system is indicated to be in the neighborhood of $9,000 to $13,000. I am sorry, Nine to thirteen, yes, sir.

Mr. McDADE. Per vehicle?

General CERCY. Yes, sir.

Mr. McDADE. Both systems?

General CERCY. Both systems?

Mr. McDADE. Indentical cost in both systems?

General CERCY. No, on the VIS.

Mr. McDADE. The VIS for Bradley?

General CERCY. $9,000 for the M1s, sir.

Mr. McDADE. How much for the Bradley?

General CERCY. $13,000 for the Bradley.

Mr. McDADE. We understand the Marine Corps is considering procurement of VIS for their LAV vehicle fleet. Do you know about that? Are you going to do a joint program? Do you know where that is for the moment?

General CERCY. I would have to answer that for the record.

Mr. McDADE. Have you talked to the Marines about it?

General CERCY. I don't know, sir.

Mr. McDADE. Call them up and let me know tomorrow. The Army informed the Committee that the results of the VIS candidate demonstration would be available this month. You say the tests were positive, do you?

General CERCY. The indications I have are that it was, although I have not seen the report.

### VIS TESTING

Mr. McDADE. Well, do you know whether the Committee will get the report of the testing? We are anxious to get it.

General CERCY. Shortly, sir.

Mr. McDADE. Do it as quickly as you can, will you?

The demonstration, as we understand it, is intended to show whether VIS falls within acceptable Army performance, cost, budget and schedule guidelines and the Army concerns are resolved. What are these guidelines and concerns?

General CERCY. Sir, just that it does, in fact, meet the reliability improvement.

Mr. McDADE. Amplify it for the record.

[The information follows:]

The performance, cost, budget, and schedule guidelines for VIS are the same as for any Army procurement program. As a result of analysis and test and evaluation, VIS must show operational benefits and improvements over the AN/VIC-1. VIS must be cost effective over its life cycle, and it must be affordable within the Army budget.

Specific Army concerns include: compatability of the VIS candidates to existing slip-rings in our current fleet of vehicles and the associated technical interfaces; the interoperability of our current Combat Vehicle Crew Helmet with VIS systems and the interoperability of the VIS Combat Vehicle Crew Helmet with the current AN/VIC-1; the degree of modifications that may be required for each system to accommodate VIS cable routing and the costs of those modifications, if any; the electromagnetic compatability of VIS for each proposed system; the costs associated with any research, development, and engineering efforts required for VIS; the magnitude of the technical and operational improvements afforded by VIS as they relate to mission accomplishment on the battlefield. All of these concerns will be considered individually and collectively in arriving at the final determination as to whether or not procuring VIS is prudent.

Mr. McDADE. The Army letter also stated that the review would include an economic and engineering assessment of a full versus modified NDI approach to acquisition. Does that mean that the Army is considering a long and expensive R&D program when the VIS system is readily available off the shelf?

General CERCY. No, sir.

Mr. McDADE. You are still going to buy this off the shelf?

General CERCY. Yes, sir.

### USES OF VIS

Mr. McDADE. Is it true the Army is planning to use the VIS in large shelters? Will it be used in the Army tactical control system?

General CERCY. No, sir. The considerations were for four systems. The considerations for use were for four systems, for the tank, the Bradley, the HIP, the Howitzer Improvement Program and for the new Standard Integrated Command Post System.

Mr. McDADE. I was asking about the Army Tactical Command and Control Center.

General CERCY. That is the same as the improved command post.

Mr. McDADE. How much is included in the budget for procurement of VIS for the command and control center program?

General CERCY. I would have to answer that for the record.

[The information follows:]

There are no funds in the fiscal year 1991 budget request for the procurement of VIS for the Standardized Integrated Command Post System. As with the other systems that are being considered as recipients for VIS, the available funds in the system line will be used to procure VIS if it is determined to be an acceptable and affordable replacement for the current intercommunication system.

Mr. McDade. Okay. Are you looking at VIS for any other purpose besides those that we mentioned?

General Cercy. Just those four at this time.

Mr. McDade. In the 1989 Appropriations Act, the $10 million was included for the VIS program. It was a so-called, and I am putting quotes around this advisedly, unauthorized appropriation, and therefore, withheld from obligation. However, conference action on the fiscal year 1990 authorization act effectively removed this problem. Is there still a hold-up on that $10 million?

General Cercy. I would have to check that. It is my understanding that it was not authorized.

Mr. McDade. I believe that action in the fiscal year 1990 authorization act fixed the problem.

General, look it up and put it in the record and call us back this afternoon.

[The information follows:]

According to a legal review and opinion rendered by the Army Office of the General Counsel, the Authorization Conference Report language to which you refer does not constitute an authorization for the $10 million appropriated but not authorized in the fiscal year 1989 Defense Authorization Act.

## 120mm Mortar

Mr. McDade. The budget includes $12.3 million for the procurement of 196 120mm mortars. What is the status of the program?

General Cercy. The program is proceeding to replace the 4.2 inch mortars. We intend to procure approximately 1,400 of these through the arsenal channels. Fiscal year 1990 will transition the production from the Soltam of Israeli to the U.S. and we will begin the production in the U.S.

Mr. McDade. What will be the total procurement quantity and cost? Is there any way that has changed since last year?

Is there any changes on quantity and cost?

General Cercy. I think the quantities have dropped, sir. As many quantities are being reduced, as we redesign the force structure for the future. Total quantities now, I believe, are 1,400 and some as compared to about 2,600 previously.

Mr. McDade. You are saying any changes reflect the changes in the force structure?

General Cercy. That is correct.

Mr. McDade. What are the current program milestones for the mortar and for the ammunition?

General Cercy. I would have to provide that for the record.

[The information follows:]

The towed weapon and nondevelopmental item (NDI) high explosive (HE), illumination, and smoke ammunition were type classified limited procurement on March 22, 1990, and are scheduled for fielding (First Unit Equipped—FUE) in February 1991. The carrier weapon system is on schedule for type classification low rate production in April 1990. The enhanced ammunition development was extended three months (January 1990 to April 1990) to address technical issues identified in previous testing, which have since been resolved and the ammunition will be delivered by the contractor (Martin Marietta Ordnance System) in May 1990. Technical testing of enhanced ammunition is scheduled for May through September 1990, followed by a follow-on operational test and evaluation (FOT&E) in January to March 1991. The enhanced ammunition will be type classified low rate production (TC-LRP) in March 1991, with a production contract award in January 1992.

Mr. McDade. There is a quizzical thing. It looks like last year we appropriated $10.8 million to buy 167 mortars, and we are advised those funds will buy only 99. Is there some reason for that—what is happening there?

Are you familiar with those figures?

General Cercy. No, sir. I would have to respond for the record.

[The information follows:]

Yes, the Army did plan to procure 167 mortars with the FY 1990 appropriation. This was based on a second year production by Watervliet, with the FY 1987 and FY 1989 funding supporting the first year Watervliet production start-up cost, as well as, the procurement of the 63 offshore towed mortars. With the lapse of the FY 1987 funding, the FY 1990 appropriation must now support Watervliet Arsenals first year production start-up cost, procurement for 17 towed mortar systems, and associated testing and evaluation, resulting in a higher first year unit cost of mortars produced by Watervliet Arsenal and reducing the original planned procurement of 167 carrier mortars to 102 towed and carrier mortars.

Mr. McDade. Thank you, Mr. Chairman.

Mr. Murtha. General, let me ask you a technical question. We have gone over with you are your staff the topics that we intended to discuss at this hearing. Obviously you know we are going to talk about the tanks, the mortars and so forth. Why are we having such a problem getting answers? Do you need the questions in advance?

We have found that when we give you the questions in advance, we read the questions and you read the answers and we don't get much farther. What can we do here to get better answers?

What information do you need before you come up here to get better answers on these subjects?

General Cercy. Sir, I think—I don't need any more information than what I had. We don't have some of these answers, obviously, because of the dynamics of the times. Studies are ongoing.

Mr. Murtha. I thought that might be it. In other words, there is just so much going on that it is so difficult to come up with answers at this time.

Thank you very much. We will have other questions for the record. The Committee will adjourn until Tuesday at 10:00 a.m.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

## M1 Tank Program

*Question.* The fiscal year 1991 budget proposes that this be the last year for M-1 tank procurement funding. The budget funds—by transfer from fiscal year 1990—$747.3 million for the procurement of 163 M1A1 tanks and 62 M1A2 tanks. At the completion of tank production, the two tank plants are proposed to be put in layaway. What additional tank plants or facilities will be put in layaway and at what cost?

Answer. Preliminary cost estimates to layway facilities which are affected by the tank program termination decision are: Lima Army Tank Plant—$294.0 million; Detroit Arsenal Tank Plant—$103.2 million; Stratford Engine Plant—$90.8 million; Scranton—

$33.8 million; Sterling—$11.2 million; AMCCOM (Government Furnished Material suppliers)—$30.0 million; Allison Transmission—$28.0 million; Special Projects facilities—$43.2 million. These costs are provided as a rough order of magnitude, and will not be firm until a plant closure study now being conducted by Army Materiel Command and General Dynamics Land Systems is completed late in the summer of 1990.

*Question.* What additional program close-down costs will the Army incur as a result of the decision to terminate M-1 tank production?

Answer. The costs provided in the answer to the previous question are the only liabilities incurred by the U.S. Army to layaway the tank production facilities except annual maintenance costs of approximately $2.6 million for Detroit Arsenal Tank Plant and Lima Army Tank Plant. Again, these figures are an initial estimate and may change following the more in depth analysis of the tank plant closure study.

*Question.* Once the tank production facilities are put in layaway, how long will it take to re-start tank production and begin deliveries?

Answer. The planned start up of tank production is for the Block III tank low rate initial production to begin in FY 1999. If Abrams M1A2 tank production has to resume before then, but under other than national emergency conditions, the length of time to start up the production lines is dependent upon the quantities and types of long lead materials stockpiled before the production base goes cold, availability of a trained work force, and willingness of industry to reconstruct the necessary vendor base. The tank plant closure study will include an analysis of this aspect. Preliminary analysis, however, indicates that under ideal conditions, it will take 24 months for the first tank to be produced. The most likely scenario is 36-48 months.

*Question.* How much would it cost to get tank production started again?

Answer. Lacking the data from the plant closure study which is now ongoing, a rough order of magnitude estimate for tank production restart is between $1.5 billion and $2.0 billion. Preliminary analysis does show that the cost to start up Block III will be significantly higher without a warm production base; but that the cost of a trickle M1A2 tank production and expected Foreign Military Sales, is greater than layaway and startup.

*Question.* How much is included in the fiscal year 1991 budget for M-1 program termination and for what specific purpose?

Answer. The total amount identified in the FY 1991 budget submit for closing DATP is $111.6 million. $62.2 million is required for layaway, restoration, rehabilitation, and maintenance of equipment, and $49 million is identified in the M1 Abrams line for the PM's contractual responsibilities associated with closing DATP. There are no dollars in the FY 1991 budget associated with closing the LATP. The Army is currently negotiating a contract for a study to determine the economic impact (to include the layaway costs) of closing down the plants, but it will not be completed until August 1990.

*Question.* You have often described the M1 tank to be the finest in the world. Why did it place fifth in last years Canadian tank gunnery trophy contest?

Answer. Since 1983 the Canadian Army Trophy (CAT) competition has been conducted between Army Groups, with no national ranking assessed. NATO's Northern Army Group (NORTHAG) won the Trophy from the Central Army Group (CENTAG) in the CAT 89 competition. On a platoon basis, the top U.S. platoons placed third in CENTAG, sixth in NORTHAG, and seventh overall. The U.S. Army has conducted a thorough assessment of the CAT 89 competition to identify factors influencing the performance of U.S. teams. Based on this assessment a comprehensive strategy for success for CAT 91 has been developed and implemented. This includes a standardized U.S. Army Training Plan and associated Training Assessment Strategy, specifically oriented at the tasks, conditions, and standards of the CAT competition.

## M1 TANK PRODUCTION ALTERNATIVES

*Question.* What additional annual costs would the Army incur by continuing to produce M1 tanks at such rates, such as operating costs?

Answer. Based on the current fleet structure, the M1A2 would replace M1A1s, which will replace M1s, which are rolled into the National Guard. The M1A2's operating cost is virtually the same as the M1A1 because of the lower component failure rates and improved diagnostics capability. The delta average annual operating cost for an M1A1 versus an M1 is approximately +$90,000 (FY 1989 Cost $) per tank per year. The National Guard's average annual operating cost for the M1 tank is $125,000 (FY 1989 Cost $) per tank per year. These costs are based on the current fleet structure. Changes to this current fleet structure would result in different operation and support costs.

## M1A2 TANK

*Question.* What will the fiscal year 1990 and 1991 funding procure? Describe it generally now and provide details for the record.

Answer. The FY 1990 funding will procure 481 M1A1 tanks and FY 1991 funding will procure 225 tanks (163 M1A1's and 62 M1A2's). As reflected in the President's Budget for FY 1991 the specific elements of cost for FY 1990 and FY 1991 are as shown below:

WEAPON SYSTEM COST ESCALATED

[Dollars in millions]

| | Fiscal year 1990 | Fiscal year 1991 |
|---|---|---|
| Quantity | 481 | 225 |
| Element of cost: | | |
| 1. Basic vehicle | 756.701 | 413.25 |
| 2. Block II Mods | 59.598 | 178.285 |
| 3. Engine | 188.238 | 98.765 |
| 4. Transmission | 68.610 | 35.011 |
| 5. Final drives | 4.233 | 2.246 |

## WEAPON SYSTEM COST ESCALATED—Continued

[Dollars in millions]

| | Fiscal year 1990 | Fiscal year 1991 |
|---|---|---|
| 6. Fire control | 99.866 | 52.305 |
| 7. Track | 14.409 | 7.704 |
| 8. Roadwheels | 5.196 | 2.520 |
| 9. Gun mounts | 9.019 | 4.387 |
| 10. Gun | 31.099 | 15.860 |
| 11. Drvrs. night viewer | 2.007 | .974 |
| 12. Basic issue items | 1.928 | .936 |
| 13. Milstrips (GPF&RH) | 4.613 | 2.239 |
| 14. ECO's | 1.717 | .892 |
| 15. Test sets | 26.898 | 13.054 |
| 16. Special tools | 6.329 | 3.071 |
| 17. Cost red./VE's | 1.247 | 0 |
| 18. STS | 36.539 | 63.451 |
| 19. Govn't engineering | 13.129 | 13.620 |
| 20. QA Government | .620 | .643 |
| 21. Government test | 27.900 | 24.600 |
| 22. Auxiliary services | 10.978 | 7.228 |
| 23. RAM-D | 0 | 0 |
| 24. Should cost | 2.200 | 2.282 |
| 25. DATP Assy. shutdown | 0 | 49.000 |
| Total weapon system cost | 1,373.074 | 992.324 |
| Less adv. proc | 400.639 | 245.000 |
| Regular proc | 972.435 | 747.324 |

[CLERK'S NOTE.—The Army was asked to provide a breakout of M1A2 costs, in answer to the question, but did not do so in time to be printed in this hearing volume.]

*Question.* In November of last year, the GAO issued a report titled "Block II Modification Not Ready for Production". Please respond to the following questions relative to that report:

Is it true that the current Block II tank does not have all the survivability, fightability, and lethality enhancements that were assumed to be available when the Army conducted its cost and operational effectiveness analysis? If so, what plans do you have to update this analysis?

Answer. No, it is not true. The cost and effectiveness analysis provided data and conclusions for 16 different configurations of the M1A2, and measuring varying degrees of enhancement additions to the tank. The current Defense Acquisition Board (DAB) approved configured tank was one of those variants. The DAB did approve all Block II enhancements for continued development, although it only approved the most cost effective of the enhancements (Commander's Independent Thermal Viewer, Improved Commanders Weapon Station, Core Data/Power Bus Architecture) for production. It required further justification/analysis from the Army on the non-approved ones.

*Question.* How much will the Block II changes add to the weight of the tank? What is the Army doing to keep the weight of the tank below 69.5 tons and when will the results be known?

Answer. If all Block II components are added to the tank with no offsetting weight reduction items, the M1A2 will have a combat weight of 72.8 tons. However, the weight threshold for the Abrams tank is 69.5 tons, the weight goal is 68.5 tons, and the predicted weight is 68.09 tons. There is a weight reduction development program in place, which is managing the M1A2's future weight to 68.5 tons by designing the cut-in of weight reduction items as armor modules are added to the tank. The GAO was aware of this weight reduction program at the time of the report, and stated correctly that not all of the armor modules would be added to the tank until the tank weight is reduced. If production were to continue on the M1A2 beyond early 1993, the last armor module could be added in mid-1994.

*Question.* Which Block II items are being incorporated into the prototype vehicles, which ones will most likely ultimately go into production, and when will that decision be made?

Answer. The August 1989 Defense Acquisition Board (DAB) approved the continued development of all six Block II enhancements, but only approved the Improved Commanders Weapons Station, Commanders Independent Thermal Viewer, and core electronics and power data bus architecture for production. It did provide for the inclusion of the CO2 Laser Rangefinder, Survivability Enhancements, and Position/Navigation Unit if they could be brought in under a given cost cap for the tank ($3.037 million, FY89 Constant dollars), or if additional justification and/or analysis was provided to the board. The most likely improvements to go into production are the three DAB approved enhancements and the Position Navigation unit if sufficient funds are available. The final decisions will be made at the Milestone IIIa DAB schedules for January 1992.

*Question.* What is the threat which justifies the Block II tank and when is it expected to be fielded? What specific information do we have to substantiate the assessed threat?

Answer. The FST-2 class of tanks would be the most potent threat tank that Block II would face. The first tanks of the FST-2 class are expected to appear ———. However, Block II is designed against a variety of threats, all of which would be present on a high intensity battlefield in the mid-1990's. Increased lethality of new Soviet ATGMs and precision guided artillery munitions dictate the Block II's improved top and frontal armors. Despite reduced Soviet tank production, their tank force will continue to significantly outnumber ours. The Block II's improved fire control system gives it the capability to engage more targets more rapidly and accurately. The threat is agreed to by DIA and CIA, as well as the military intelligence community of the Army.

*Question.* Is is true that the threat is driving the concurrency in this program?

Answer. The Block II tank was conceived as a system which provided increased survivability, lethality, and fightability to our forward deployed forces to counter threat modernization efforts and act as a bridge to the Block III. Based on the threat capabilities and expected intentions at the time, the Block II tank (M1A2) allowed the Army to continue a cycle of capability overmatch of comparable tank systems. While Soviet intent may have enaged, and their tank production and modernization are slowing, its capabilities have not diminished. Soviet modernization will focus on R&D

with long term, high quality military payoffs, leading to a smaller and qualitatively better force. Soviet capabilities in the long run will not change—only the rate at which they obtain them. Meanwhile, expected fielding of the Block III tank has been delayed until 1999-2000, continuing need to develop the M1A2 tank. Concurrency in the program is now driven more by the Abrams tank program termination decisions following the FY 1991 procurement buy, and the necessity for the last 62 tanks procured to be M1A2s to verify the production line.

*Question.* The electronics package of the tanks digital core, which will integrate the Block II components, has not previously been used in a tank. The Army expects that this package will result in numerous improvements in reliability, survivability, operation and support costs, and maintenance. When will you have data to support these expectations? When will the software that drives this package be tested?

Answer. The RAM-D test is scheduled to begin in April 1991 and will be completed by November 1992. The report analyzing the data collected is expected in December 1992.

*Question.* What is the linkage between the Blook II tank and the Block III tank? When will the Block III tank configuration be known?

Answer. The Block II development provides a technlogy base for the Block III tank. It provides an evolutionary approach to developing a standard vehicles electronics architecture that can be used in other future combat vehicles besides the Block III. The Commanders Independent Thermal Viewer, Position Navigation Unit, and Radio Interface Unit can all be used unmodified in the Block III if desired. The core power and data management system of the Block II could also be readily adapted for use in future combat vehicles, with individual components, such as the Remote Power Controllers and Analog Interface Modules used without modification.

The intial Block III Tank configuration will be known at the completion of the source selection process currently in progress. Source selection is anticipated to be completed in early May of this year. The configuration will not be finalized until the completion of the Common Chasis Advanced Technology Transition Demonstration (CCATTD) efforts in late FY 1993 prior to entering Full Scale Engineering Development for the tank.

## FOREIGN SALES OF M1 TANKS

*Question.* Who will pay to establish a logistic support base for the M1A2 tank? How much will this cost?

Answer. The U.S. Army is planning a contractor logistics support contract for unique Block II components with GDLS to support the 62 M1A2 tanks. Any further logistics support requirements required by a FMS customer will be funded by that customer at no additional charge to the U.S. Army.

## VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS)

*Question.* Last year's Appropriation's Act contained a legislative provision requiring the Army to expeditiously procure an improved vehicle intercommunication system, with a goal of an initial procurement contract not later than September, 1990. What is the Army doing to comply with this requirement?

Answer. The Army has recently completed a demonstration of the VIS candidates, conducted at Fort Monmouth, N.J. and Fort Knox, KY to determine performance, compatibility, interoperability, integration parameters, anticipated research, development, engineering, and production cost, technical and operational improvements over the AN/VIC-1, and the feasibility of a non-developmental item acquisition approach. A milestone schedule has been developed to accommodate a contract award of September 1990 if the results from these demonstrations adequately address Army concerns.

*Question.* What are the current milestones for this program?

Answer. The following milestones have been established to meet a VIS contract goal of September 1990:

Complete Review of VIS demonstration report—2 May 1990
Contractor Presolicitation conference—8 May 1990
Initial Source Selection Evaluation—16 July to 10 August 1990
Pre-award Surveys—13 August to 24 August 1990
Discussions with bidders—27 August to 31 August 1990
Receive Best and Final Offers—7 September 1990
Contract Award—19 September 1990

*Question.* What would it cost for procurement of VIS for Bradley Fighting Vehicles and M1 tanks funded in the fiscal year 1990 and 1991 budget?

Answer. It will cost approximately $13,000 per vehicle for the Bradley Fighting Vehicle and $9,000 per M1 tank. With our planned procurement in fiscal year 1990 and 1991 for these systems VIS procurement for the Bradley would cost approximately $15.6 million and for the M1 tank approximately $6.4 million. These estimates do not include the price of required Combat Vehicle Crewman's (CVC) helmets. Each helmet will cost approximately $500 for a total of approximately $5.6 million for the Bradley and Abrams. These costs are approximate. The final costs will depend heavily on the total procurement quantity of VIS for all systems being considered.

*Question.* We understand that the Marine Corps is considering procurement of VIS for the LAV vehicle fleet. What do you know about their program and what are you doing to cooperate with them for a joint program?

Answer. We have contacted the Marine Corps and have been informed that they do not have a plan to procure VIS for their LAV vehicle or any other vehicle fleet. In the event the Marine Corps should decide to consider VIS for any of their vehicle fleets we will do everything in our power to cooperate and facilitate a joint program.

*Question.* Is the Army considering the use of VIS for any other programs? If so, please identify them.

Answer. At the present time the Army is considering procuring VIS as the intercommunications system on four systems. The M1 Tank, the Bradley Fighting Vehicle System, the Howitzer Improvement System. The latter is an integral part of the Army Tactical Command and Control Program.

## IMPROVED RECOVERY VEHICLE

*Question.* The Committee directed last year that $15 million in prior year procurement funds be used for the mandated testing program. Will the $15 million be sufficient to complete the testing and acquire the technical data package? If not, what additional funds are required and what are your plans for securing them?

Answer. No, the $15 million will not be sufficient. The estimate to accomplish the directed requirements is $22.232 million. Of this amount approximately $6 million is required for acquisition of the technical data package. An additional $7.232 million above the $15 million in prior year procurement funds will be required. A bill payer for $7.232 million will have to be found, and funds reprogramed to fund this shortfall.

*Question.* A recent milestone chart provided to the Committee staff shows that a contract award is not expected until September of this year. Testing is scheduled to begin in January 1991 and the program is not expected to be completed until January of 1992. Why does this take so long? What is the problem?

Answer. A new sole source with BMY to refurbish prototype vehicles for test, including application of fixes for previously identified deficiencies, and for supply of necessary system peculiar parts in support of testing is required. The contract process requires staffing and approval of a Justification and Approval for a sole source contract, preparation and issuance of a Request for Proposal (RFP), time for contractor proposal preparation, audit of the contractor proposal, and time for negotiations with the contractor. Once the contract is awarded, the vehicles must be refurbished and have fixes applied. Two of the five prototypes, which accumulated over four thousand Reliability and Maintainability (RAM) miles each during the original test, are close to the normal rebuild criteria for tracked vehicles, and will require extensive overhaul. In addition the contractor requires long lead time to procure parts from subcontractors to perform the required fixes. BMY has recently indicated that they may have difficulties meeting the schedule currently planned due to long lead requirements. The Army is attempting to expedite the process wherever possible.

*Question.* With the termination of the M88A2, the Army has no vehicle to recover the M1A1 tank on a slope. What plans is the Army making for recovery of the Block III tank?

Answer. In conjunction with reducing combat vehicle weights in the Armored Systems Modernization (ASM) program, of which the Block III tank is a part, long term Army plans are to field an adequate ASM recovery variant to support the ASM fleet. The ASM recovery vehicle will be more versatile than the current M88A1. It will have a remote hook-up capability and improved armor, enabling it to recover/two quickly under fire, plus all current standard recovery capabilities. It is anticipated that the ASM recovery variant would be similar to the ASM combat mobility vehicle (CMV) in size and chassis configuration. Once the currently projected ASM package I is approved, it will be more feasible to justify and prioritize an ASM recovery variant, as only mission modules would differ between the CMV and ASM recovery variant. The soonest an ASM recovery variant is projected to be available is 2004.

## FIELD ARTILLERY AMMUNITION SUPPORT VEHICLE

*Question.* Last year, the Congress appropriated $45 million above the budget for procurement of the Field Artillery Ammunition Support Vehicle. What plans does the Army have to obligate these funds?

Answer. The Army continues to support the procurement of FAASV's within priority. Until all FY 1990 bills are defined, no concrete decision can be made on FAASV procurement.

*Question.* Is this appropriation being considered as a source of funds in any pending reprogramming?

Answer. Yes.

*Question.* The Army has stated an objective of fielding one FAASV for every Howitzer Improvement Program (HIP). Is this still your objective?

Answer. Yes. The Army's objective to field one FAASV for every HIP has not changed.

*Question.* How do you intend to achieve this objective when no additional FAASV procurement has been budgeted?

Answer. The Army is in the process of determining future procurement requirements for the FAASV. This will be directly related to the current force structure requirements for the future and procurement requirements for the M109 HIP.

*Question.* How many FAASV vehicles are you presently programmed to procure and how many HIP vehicles will be fielded?

Answer. The Army has already fielded 675 FAASV's. The exact number of additional FAASV's is still being evaluated based on the future force structure, which has a direct correlation to the procurement requirements for the HIP, 906.

*Question.* In a recent report on operational testing for the HIP, the Director of Operational Test and Evaluation stated that support problems were dominated by ammunition resupply. He stated, in part, "The central player in this is the M992 [FAASV], universally damned by all respondents to questionnaires." He went on to identify specific deficiencies of the vehicle, including that the vehicle was unsafe to ride inside. What are you doing about this?

Answer. The Army plans to address the FAASV compatibility requirements to the HIP, by initiating a product improvement program beginning in FY 1992. Plans include redesigning of the ammunition storage racks to accommodate the M200 series propellant charge, deleting the X–Y stacker, redesign of the conveyor belt, and possible modifications to the auxiliary power unit.

*Question.* The Army has been testing an Israeli-designed ammunition trailer for use with field artillery. Does the Army intend to buy this trailer as a much less expensive alternative to the FAASV? If not, why not?

Answer. The Army conducted an evaluation of the Israeli ammunition trailer in 1988. The Army does not have any plans to procure this trailer. The Israeli ammunition trailer does not conform to the doctrine, tactics or concept of employment of U.S. artillery.

## BRADLEY FIGHTING VEHICLE

*Question.* Last year, Congress approved a five-year multiyear procurement for the Bradley Fighting Vehicle at a rate of 600 vehicles per year. Earlier this year, Secretary Stone was quoted as questioning whether this production rate was affordable. What is the status of the Bradley multiyear contract?

Answer. The original contractor proposal at a 600 vehicle per year quantity is being restructured to reflect the Army's recent force restructuring. Bradley procurement quantities have been adjusted based on the new Army requirements for a total of 1,200 additional vehicles beyond FY 1989 and structured to support a four year multiyear contract. This strategy was appoved by Secretary Stone on April 17, 1990. Proposal update reflecting the reduced procurement is being developed. The need to restructure the Bradley procurement has resulted in an associated two month slip in contract award to August 31, 1990.

*Question.* For many years, the procurement objective of the Bradley was 6,882 vehicles. It is now 8,811. What caused the change?

Answer. The Bradley Procurement Objective of 6,882 was established prior to the DSARC III decision in January 1980. Since that time, the Army force structure has changed with the number of infantry companies in a battalion increasing from three to four and the change in authorization of Bradleys in several other units. To satisfy these changes, the Army procurement objective was realigned with Army requirements and increased in March 1988 from 6,882 to 7,934 vehicles. The procurement objective was again reviewed in 1989 and readjusted to adress the growing fielding gap between Bradley and the Abrams tank, provide Bradleys to National Guard separate brigades and regiments earlier, provide a more economic production rate for Bradley, and sustain the production base for derivative vehicles until the FIFV entered production. Based on this rational, the procurement objective was increased to 8,811 vehicles where it remains today.

*Question.* How many Bradleys have been funded to date?

Answer. Through the FY 1990 procurement, 6,124 vehicles have been funded.

*Question.* What changes are being considered to the Bradley procurement profile in the current POM process or other Pentagon budget drills?

Answer. POM budget reviews, ranging from continued full production at 600 per year down to terminating the program after the FY 1991 procurement, have been conducted on the Bradley Fighting Vehicle. On April 17, 1990, the decision was made on the future Bradley requirement of 6,724 or 1,200 vehicles beyond FY 1989 production. This requirement has been structured to support a four year multiyear contract while permitting the contractor team sufficient time to phase down their production facilities to support the lower production requirements for Bradley derivative systems such as MLRS, LOS-AT, LOS-F-H, etc. which remain in production beyond FY 1993.

*Question.* What has been done, or is planned, for long lead item contracts related to the multiyear? What procurement rate is assumed?

Answer. The FY 1990 long lead and EOQ requirements were awarded on January 31, 1990 in the following amounts:

| | LLI | EOQ | Total |
|---|---|---|---|
| BFVS | $10.1 | $1.9 | $12.0 |
| FMS | 1.7 | .1 | 1.8 |
| MLRS | .8 | .3 | 1.1 |
| MLRS (FMS) | .1 | | .1 |
| Total | 12.7 | 2.3 | 15.0 |

These long lead and EOQ expenditures support the FY 1990 production of 600 Bradleys, 98 FMS Bradleys, and 66 MLRS vehicles.

*Question.* What are the current milestones for award of the multiyear contract?

Answer. Current FY 1990–94 milestones for the multiyear procurement of the vehicle chassis are as follows:

| | |
|---|---|
| RFP Released | 6 September 1989 |
| FMC MYP Proposal Received | 7 November 1989 |
| FMC LLI Award | 31 January 1990 |
| FMC MYP Proposal Update | 3 April 1990 |
| Gov Audit Completed | 27 April 1990 |
| Business Clearance Review | 15 May 1990 |
| Negotiations Completed | 29 June 1990 |
| Contract Award | 31 August 1990 |

*Question.* A competitive down-select for the TOW II subsystem is planned, leading to a fiscal year 1990–1994 multiyear contract. What are your current milestones?

Answer. The FY 1990–94 MYP award for the TOW II Subsystem was placed on hold pending a final decision on the Army's requirement for the Bradley Fighting Vehicle. With the decision on April 17, 1990 for 1,200 vehicles beyond FY 1989 and the approval to restructure the program to support a four year multiyear contract, PM–TOW is moving ahead to award a multiyear contract for the TOW Subsystem in early May 1990.

*Question.* What has been your experience with quality and cost from initial deliveries from the second source manufacturer for the TOW II subsystem? Has he been fully qualified?

Answer. The second source manufacturer, Texas Instrument (TI) is a fully qualified supplier. No significant quality problems have been identified with TOW II Subsystem units delivered by TI. Deliveries have been either slightly ahead or on schedule. The FY 1989 unit price was 17 percent below their competitor, Hughes Aircraft Corp.

## M119 105MM TOWED HOWITZER

*Question.* Last year, Congress reduced the $24.6 million budget for the M–119 105mm towed howitzer to $4 million. This was because of continued delivery delays from both British and the domestic manufacturers. The conference report stated that if workforce reductions or a production break was threatened a reprogramming would be considered. What are your plans in this regard?

Answer. The current program at the U.S. arsenals is continuing without a workforce reduction or a production break. The FY 1990 funding reduction affected only the fielding schedule for the U.S. produced howitzers. Armament, Munitions, and Chemical Command (AMCCOM) was able to rework the production plans and eliminate any potential for personnel layoffs or production breaks.

*Question.* Will there be a production break as a result of last year's appropriation or for any other reason?

Answer. There will not be a break in production as a result of last year's appropriation or for any other reason.

*Question.* What is the overall status of this program and what changes have been made since last year?

Answer. The overall program status is on schedule, with the first U.S. produced howitzer being fielded in October 1990 to undergo initial production testing (IPT). The changes since last year involves fiscal year 1987 tooling and fiscal year 1989 production cost underestimates by Rock Island Arsenal and Watervliet Arsenal, which were not identified until late September 1989. Review and final report by Headquarters, Armament, Munitions, and Chemical Command (AMCCOM) was presented to the Army staff in December 1989. The factors attributing to the arsenals underestimation were a direct result of: (1) late delivery of the British production technical data package for use by the arsenals; (2) the arsenals lack of experience in working with British stainless steel; (3) the arsenals production cost estimates were based on experience working with the U.S. built M102 howitzer; (4) the arsenals difficulty in identifying all special tooling requirements peculiar to the production of the M119; and (5) the lack of U.S. resources to produce British stainless steel. The Army has resolved all but approximately $2.3M required for the FY 1987 tooling cost and is fully committed to resolving this issue by the end of May 1990.

*Question.* What is the nature of contract changes that were made last December?

Answer. Because of continued late deliveries of howitzers and at the request of Royal Ordnance, the contract delivery schedule was extended. The last delivery under contract is scheduled for December 1990. "Consideration" obtained by the Army (for the delivery delay) was substantial. The production contract was converted to a firm-fixed-price, in U.S. dollars versus British Pound Sterling.

*Question.* The contract with Royal Ordnance contains a clause that states that if the contractor's monthly deliveries become delinquent by one month, one howitzer is deleted from the contract and the License Agreement workshare requirement is reduced by the same amount. To what extent has or will this clause be invoked?

Answer. Throughout last year (1989) the contract pre-positioned compensation clause was invoked four times, reducing Royal Ordnance's total contract quantity from 151 M119's to 147. Royal Ordnance deliveries have improved to the point that Headquarters, Armament, Munitions, and Chemical Command (AMCCOM) does not anticipate using the clause for the remainder of the contract.

*Question.* How many howitzers in total will be procured from Royal Ordnance?

Answer. A total of 147 M119 howitzers will be procured from Royal Ordnance.

*Question.* Last year we were told that the delivery of the last howitzer from RO had slipped from January, 1990 to August 1990. We are now informed that it has slipped to December, 1990. What happened?

Answer. Royal Ordnance experienced capacity and vendor problems. Armament, Munitions, and Chemical Command (AMCCOM) does not anticipate any further revisions to the last howitzer delivery date of December, 1990.

*Question.* Last year we were told that the delivery of American-produced weapons had slipped from February to October, 1990. What is your current plan?

Answer. The first U.S. production howitzers are scheduled to be delivered from Rock Island Arsenal in October of this year. Initial cannon deliveries have been received from Watervliet Arsenal (January 1990) with the first two cannons submitted for proof testing at Aberdeen Proving Grounds (APG). The initial production test (IPT) which is funded in the FY 1991 budget, is scheduled to begin at APG in November, 1990.

*Question.* For the record, provide the monthly delivery schedule for the American-produced howitzers.

Answer.

| Month of delivery | FY 1988 | FY 1989 | FY 1990 | FY 1991 |
|---|---|---|---|---|
| 1990: | | | | |
| October | 3 | | | |
| November | (1) | | | |
| December | (1) | | | |
| 1991: | | | | |
| January | (1) | | | |
| February | 3 | | | |
| March | 3 | | | |
| April | 3 | | | |
| May | | 3 | | |
| June | | 3 | | |
| July | | 3 | | |
| August | | 3 | | |
| September | | 3 | | |
| October | | 3 | | |
| November | | 3 | | |
| December | | 4 | | |
| 1992: | | | | |
| January | | 4 | | |
| February | | 4 | | |
| March | | 4 | | |
| April | | 4 | | |
| May | | 4 | | |
| June | | 4 | | |
| July | | 4 | | |
| August | | | | 4 |
| September | | | | 4 |
| October | | | | 4 |
| November | | | | 4 |
| December | | | | 4 |
| 1993: | | | | |
| January | | | | 4 |
| February | | | | 4 |
| March | | | | 3 |
| April | | | | 3 |
| May | | | | 4 |
| June | | | | 4 |
| Total | 12 | 53 | | 42 |

---

(1) Initial production testing, no deliveries until completion of test.

*Question.* Last year we were told that the $30.5 million appropriated in fiscal year 1989 would procure 31 British howitzers and 57 American howitzers. We now find that this funding will procure only 27 British howitzers and 6 American howitzers. What happened?

Answer. The Royal Ordnance quantity reduction from 31 to 27 howitzers was a result of the penalty clause being invoked for late deliveries during 1989, which reduced the British contract requirements from 151 to 147 howitzers. The change in U.S. quantities from 57 to 53 was due to the fluctuation in the exchange rate during the execution of the Royal Ordnance option in FY 1989. Additionally, this quantity was reduced from 53 to 6 to accurately reflect the underestimation for tooling (FY 1987) and production (FY 1989) costs at the time the Army was required to submit its FY 1991 budget request. The Army is in the final process of completing reprogramming for the FY 1987 and FY 1989 budget years, and now plans for the FY 1988 procurement of 12 howitzers and the FY 1989 procurement of 53 howitzers.

*Question.* What is the overall procurement strategy for the American-produced howitzers and what are the current procurement contract milestones for each fiscal year for which funds have been appropriated?

Answer. The overall procurement strategy is to procure all U.S. produced howitzers from the U.S. arsenals. The procurement contract/project order milestones for each fiscal year funds have been appropriated as reflected as follows:

*Contractual milestones*

| | |
|---|---|
| Royal Ordnance contract signed | July 1987 |
| First orders for 27 U.K. howitzers | July 1987 |
| First option for additional 29 U.K. produced howitzers | September 1987 |
| Option for 44 U.K. howitzers | November 1987 |
| Project order for 12 U.S. howitzers | December 1987 |
| Option for 20 U.K. howitzers | March 1988 |
| Option for 31 U.K. howitzers | December 1988 |
| Project order for 53 U.S. howitzers | December 1988 |
| U.S./U.K. revised delivery contract (reduction of 4 howitzers from U.K.) | December 1989 |
| Delivery of First U.S. howitzer | October 1990 |
| Initial Production Test for first delivery of U.S. built howitzers | November 1990 |

## HOWITZER IMPROVEMENT PROGRAM (HIP)

*Question.* The budget includes $206.8 million for procurement of the 163 modification kits for the M109 howitzer, collectively known as the Howitzer Improvement Program (HIP). Last year these 163 kits were expected to cost $179.6 million. What accounts for the 15% cost increase?

Answer. Installation costs relative to the HIP kits, previously included in the Operations and Maintenance, Army (OMA), appropriation, have now been transferred into the Weapons and Tracked Combat Vehicle, Army, appropriation and accounts for approximately 37% of the cost increase. The balance of the increase is attributable to increased inflation (32%), Automatic Fire Control System (AFCS) cost growth (29%), and the addition of several items not included in previous estimates (2%). These items include lead filter kits, upgraded transmission kits, Dynamic Reference Unit

(DRU) mounting plates, test program sets, ammunition conveyor interface, handoff tools, and depot maintenance plant equipment.

*Question.* Fiscal year 1991 is the first year of full scale production, after two years of low rate initial production. Last year we were told that the total procurement cost for HIP was $1.6 billion for 1,700 howitzers. What are your current estimates?

Answer. Fiscal year 1991 represents the last year of low rate production, not the first of full scale production. Fiscal years 1989 and 1990 were combined to fund the first low rate production contract for 59 howitzers (19 funded with 1989 funds and 40 with 1990 funds-fiscal year 1988 funds were for advanced procurement). The Army System Acquistion Review Council (ASARC) authorized procurement of 222 HIPs in low rate production and 960 systems overall. Full scale production will begin in fiscal year 1992. The ASARC approved quantity of 960 HIPs is estimated to cost $1.15 billion (escalated).

*Question.* What is the status of production contracts for the HIPs funded for procurement in fiscal years 1989 and 1990?

Answer. Fiscal years 1989 and 1990 are funding three major contracts and the manufacture of Government Furnished Equipment (GFE). Contracts for long lead items and DRUs are on target for planned award dates in April and May 1990 respectively. Concerning the low rate production contract, the prime contractor is in possession of the Request For Proposal and a response is expected in mid-May 1990. Partial funding for the manufacture of the cannon and gun mount kits has been released to Watervliet and Rock Island Arsenals. The balance of funds of GFE for the 1989/1990 procurement will be released upon receipt of fiscal year 1990 resources at the project office.

*Question.* Do you have sufficient procurement contract information from the contractor, including proposals, to have confidence in your current procurement cost estimates?

Answer. We have received detailed proposals for long lead items which were used in the evaluation of fiscal year 1988 advanced procurement and the planned fiscal year 1989/1990 long lead procurement. Further, the Project Manager has sufficient confidence in the Baseline Cost Estimate (BCE) based upon the extensive effort and detail dedicated to its preparation. The BCE was constructed from an engineering "bottoms-up" estimating technique for individual HIP components and subsystems. The Government analysis of the Design To Unit Production Cost (a deliverable under the Full Scale Development contract) was the basis for formulating the hardware costs incorporated into the BCE. The BCE was validated by the Armament, Munitions, and Chemical Command (AMCCOM) Cost Analysis Division and was within acceptable tolerances when compared to the Independent Cost Estimate prepared by the Cost and Economic Analysis Center (CEAC).

*Question.* What is the procurement strategy for fiscal year 1990 and 1991 and what are your plans for introducing competition into this program?

Answer. Currently, the Request for Proposal (RFP) for the low rate production contract is planned for sole source award to BMY, the FSD prime contractor. As part of the basic low rate production contract, an option exists for the production of the balance of the low rate quantities (163) in fiscal year 1991. The Technical Data Package (TDP), scheduled for delivery to the Project Manager in the second quarter of fiscal year 1991, will be used to support full and open competition for the full scale production contract in fiscal year 1992.

*Question.* The Department's Office of Operational Test and Evaluation recently reported that initial operational testing for HIP had shown that the system had potential but was not ready for full rate production. What are your plans for a Follow-on Operational Test and Evaluation (FOTE) and when will it occur?

Answer. An FOTE is planned to begin the 4th quarter of fiscal year 1991 using low rate production HIPs. The FOTE will acquire data to address the critical operational issue of responsiveness, demonstrate that hardware and software fixes applied as a result of Initial Operational Test and Evaluation (IOTE) and Technical Testing (TT) support attainment of the Mean Time Between Operational Mission Failure (MTBOMF) requirement of 62 hours, and validate the Operational and Organizational Concept is supportable with the production version of the HIP.

*Question.* What are the results of other HIP testing to date?

Answer. Technical Testing has continued at Aberden, Yuma, and Dugway Proving Grounds. Reliability testing has verified the fix effectiveness for the navigation interface and generator drive failures noted during IOTE. Chemical challenge testing has demonstrated that the microclimate cooling system (MCS) will adequately protect personnel from chemical and biological agent ingestion and percutaneous hazards. Testing is planned to continue through June 1990.

*Question.* For the record, provide the current development and procurement milestones for this program and the monthly delivery schedule for the HIPs funded through fiscal year 1991.

Answer. A Milestone IIIA review was successfully completed on February 7, 1990. The resulting low rate production contract is planned for award in June 1990. The fiscal year 1991 option to the low rate production contract is scheduled for award in the second quarter of fiscal year 1991. Milestone III is scheduled for the second quarter of fiscal year 1992.

The delivery schedule for the HIPs funded through fiscal year 1991 will not be stabilized until the low rate production contract is awarded. The schedule reflected in the Request For Proposal is:

| Month of delivery | Quantity by funded year | | |
|---|---|---|---|
| | FY 1989 | FY 1990 | FY 1991 |
| 1991: | | | |
| June | 2 | | |
| July | 4 | | |
| August | 5 | | |
| September | 6 | | |
| October | 2 | | |
| November | | 7 | |
| December | | 10 | |
| 1992: | | | |
| January | | 7 | |
| February | | 6 | |
| March | | 5 | |
| April | | 5 | |

| Month of delivery | Quantity by funded year | | |
|---|---|---|---|
| | FY 1989 | FY 1990 | FY 1991 |
| May | | | 7 |
| June | | | 9 |
| July | | | 11 |
| August | | | 13 |
| September | | | 14 |
| October | | | 15 |
| November | | | 17 |
| December | | | 18 |
| 1993: | | | |
| January | | | 17 |
| February | | | 17 |
| March | | | 16 |
| April | | | 9 |

## MK-19 40MM GRENADE LAUNCHER

*Question.* Fiscal year 1991 was to have been the fourth year of a five year multiyear contract for procurement of the MK-19 40mm grenade launcher. Instead, the budget proposes to terminate this program. Last year, the Army projected procurement of 13,942 of these weapons. How many will be procured under your current proposal?

Answer. Under the current proposal, the Army will procure 4,102 MK-19 40mm grenade launchers.

*Question.* Multiyear contracts are supposed to be used only for programs with a very stable requirement. Why was a multiyear contract signed when the requirement was so uncertain?

Answer. At the time the multiyear contract was signed (December 1988), the plan for the procurement of over 13,000 weapons was based on a Basis of Issue Plan (BOIP) reflecting fielding in various quantities to all combat arms forces and a large number of combat support and combat service support forces. Due to budget cuts and pending force reductions, this plan had to be modified in the preparation of the fiscal year 1991 budget.

*Question.* How does the Army plan to field and use the weapons it does buy, and does this differ from the previous plan?

Answer. The Army has truncated its requirement for the MK-19 to equip only light forces, contingency forces, and Military Police units. This has reduced the requirement to approximately 4,102 weapons.

*Question.* What will it cost to terminate this program? Where will you secure the funding since there is no budget for this program in fiscal year 1991?

Answer. The Army portion of the contract will be terminated at the end of the fiscal year 1990 procurement (which has been reduced to 942 weapons—83 weapons short of the quantities contracted for through 1990). All termination costs will, therefore, be associated with the last three years of the contract. Under the Federal Acquisition Regulation, contract termination costs will not exceed 5.1% of the total contract price for year three, 3.4% of the total contract price for year four and 1.7% of the total contract price for year five. As the total contract price was $99,503,250, this amounts to approximately $5,000,000 (cancellation charges may not exceed $5,000,000) in termination costs if terminated in fiscal year 1990, $3,383,105 if terminated in fiscal year 1991 or $1,691,555 if terminated in fiscal year 1992. Currently, sufficient funds have been withheld from the fiscal year 1990 procurement to cover termination costs in either case.

*Question.* What will be the impact of this program termination on the prime contractor?

Answer. Saco Defense, Inc. (SDI), the prime contractor, currently employs approximately 700 personnel. As of the end of fiscal year 1989, approximately 45% of those employees worked on the MK19. That figure was projected to rise to approximately 65% by the end of fiscal year 1990. Other major projects that SDI works on include the M60 and M2 machine guns. The machine gun line is going cold due to no further procurements. Consequently, with the Army terminating its part of the MK19 contract with the fiscal year 1990 procurement, only the Marine Corps procurement and limited potential Foreign Military Sales (FMS) will carry SDI through fiscal year 1991. With the possible exception of a fiscal year 1992 Marine Corps procurement, any procurements beyond 1991 would be foreign sales.

*Question.* The prime contractor has had a history of technical difficulties and delivery delays in this program. What is the status of these?

Answer. Delivery delays were the result of contractor inhouse problems. A Method C (production difficulties resulting in significant rejection rate) was imposed in June 1989 and SDI delivered at a reduced rate through September 1989. SDI experienced a two month break in deliveries (October-November 1989) in order to certify their receiver welding process and deliveries resumed in December 1989. The Method C was lifted in January 1989. Deliveries to the Government/Army since December have been December 89–200/45, January 90–240/1, February 90–161/100, and March 90–219/94. Still to be delivered to the Army under that contract (administered by the Navy) are 221 weapons, which, at the current rate, should be delivered by July 1990. Deliveries on the Army administered contract are due to begin in December 1990. To date, that procurement has shown none of the previously encountered problems.

## TOTAL PACKAGE FIELDING

*Question.* The budget includes $63.6 million for "total package fielding". This is the first time that such an entry has appeared in the procurement budget. What is it?

Answer. Total Package Fielding is the cost associated with requisitioning and receipt of initial supply items to support the issue of an end item, packaging of the end item for fielding, and processing the end item for handoff at the destination prior to issue to a unit. Total Package Fielding costs support all active, guard, and reserve TOE/TDA organizations.

*Question.* What specifically will be procured with the $63.6 million?

Answer. The $63.6 million provides for procurement of all equipment required to field WTCV systems to the Active Army, Army Reserves, and Army National Guard. This includes initial supply items, such as Authorized Stockage List and Prescribed Load List repair parts and tools required to support the end item in the field, associated temporary duty costs for required personnel, contracts to equipment field service representatives for initial fielding, and deprocessing costs at the destination.

*Question.* Where were these costs funded previously and why have they been transferred to procurement?

Answer. Funding for Total Package Fielding was transferred from the OM&A account to the WTCV account in an effort to more accurately identify total equipment fielding costs and ensure adequate funding of equipment packages for fielding.

*Question.* What funding levels are projected in the out-years for total package fielding for this appropriation?

Answer. The projected funding levels in the out-years in escalated dollars, millions, are:

| | |
|---|---|
| FY 1991 | 63.6 |
| FY 1992 | 65.8 |
| FY 1993 | 58.9 |
| FY 1994 | 56.4 |

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, APRIL 3, 1990.

## MISSILE PROCUREMENT AND OTHER PROCUREMENT, ARMY

### WITNESSES

**MAJOR GENERAL JAMES C. CERCY, DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION**

**MAJOR GENERAL JOE W. RIGBY, DEPUTY FOR COMBAT SERVICE SUPPORT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION**

**MAJOR JACK L. KIMBERLY, DEPUTY PROGRAM MANAGER, NIGHT VISION GOGGLE PROGRAM**

### INTRODUCTION

Mr. MURTHA. The Committee will come to order. Today we welcome back Major General James C. Cercy, Deputy for Systems Management in the Office of the Assistant Secretary of the Army for Research, Development and Acquisition to discuss missile procurement programs. We also welcome Major General Joe W. Rigby, the Deputy for Combat Service Support also within the Assistant Secretary's office, to discuss other procurement issues. We will place your entire statements in the record and ask that you summarize them so we may proceed with questions.

### SUMMARY STATEMENT OF GENERAL CERCY

General CERCY. Thank you, sir.

It is indeed a pleasure to appear today to present the Army fiscal year 1991 procurement request for missiles.

The fiscal year 1991 request for $2.623 billion includes nine missile systems, the Air Defense System or Patriot, Stinger, line-of-sight forward heavy or ADATS, and the Avenger missile system, the pedestal-mounted Stinger.

Deep fire systems include the Multiple Launch Rocket System and the Army Tactical Missile System, ATACMS.

Close combat missile systems are TOW 2B and HELLFIRE. As in fiscal year 1990, Patriot represents the largest procurement at $883.2 million.

MLRS procurement continues, and we have added our initial procurement funds for the advanced anti-tank weapon system medium, AAWS-M.

Our fiscal year 1991 missile modification request for $135.4 million includes Patriot product improvements; continued procurement of Phase III modification kits for Hawk ground equipment, optical improvements to TOW; improvements to the MLRS launcher to adapt it to firing the ATACMS, the MLRS family of smart munitions such as Sense and Destroy Armor, the Terminal Guidance Warhead, TGW, and the Ground/Launched Tacit Rainbow.

Quickly, I would say in the air defense mission area, we have come a long way in modernizing our forces and this supply of Patriot will put us in very good shape in the European theater and in the forces overall.

The procurement this year will begin to concentrate on our forward area air defense where we haven't really put a modernized system since the late sixties out with our divisions.

As far as the fire support systems, we are concentrating on the deep-attack capability with the ATACMS and the continued procurement of MLRS.

Even though the threat has declined in Europe, there are ——— so no matter where we go with our forces, we need to be prepared to see deep and strike deep.

The Armor/anti-Armor competition continues with the Soviets. Even though they will be decreasing in quantities, they will be working strongly on quality so we are interested in continuing the procurement of our TOW improvement systems and our HELLFIRE missile systems.

That concludes my comments, Mr. Chairman.

As always, we solicit the Committee's continued support.

[The statement of General Cercy follows:]

# STATEMENT OF
# MAJOR GENERAL JAMES C. CERCY
# DEPUTY FOR SYSTEMS MANAGEMENT
# OFFICE OF THE ASSISTANT SECRETARY
# OF THE ARMY FOR
# RESEARCH, DEVELOPMENT AND ACQUISITION
# MISSILE PROCUREMENT, ARMY
# FISCAL YEAR 1990

Mr. Chairman, it is an honor to appear before you today to present the Army Fiscal Year 1991 (FY91) procurement request for missiles.

The FY91 request for $2,623.5M includes nine missile systems--The Air Defense systems are PATRIOT, STINGER, Line of Sight-Forward-Heavy, and AVENGER--the Pedestal-Mounted-STINGER. Deep Fire systems include the Multiple Launch Rocket System (MLRS) and Army Tactical Missile System (ATACMS). Close Combat Missile Systems are TOW 2B and HELLFIRE. As in FY90, PATRIOT represents the largest procurement $883.2M. MLRS procurement continues, and we have added our initial procurement funds for the Advanced Antitank Weapon System-Medium (AAWS-M).

Our FY91 Missile modification request for $135.4M includes PATRIOT product improvements; continued procurement of Phase III modification kits for HAWK ground equipment; optical improvements to TOW; improvements to the MLRS launcher to adapt it to firing the ATACMS, the MLRS family of smart munitions such as Sense and Destroy Armor, the Terminal Guidance Warhead (TGW) and Ground Launched Tacit Rainbow.

I would now like to provide the committee substantive support and rationale for each of the programs in our budget request. I will cover the programs in each of three mission areas: Air Defense, Fire Support and Close Combat.

## AIR DEFENSE MISSION AREA

The Army's Air Defense system must protect all Army elements: troop formations, depots, lines of communication, air bases, key command and control facilities, and other vital assets, from the air threat. This mission requires a comprehensive air defense system to defeat the air threat in both mature theater and contingency operations.

FY91 is an important transition year for the Army's Air Defense Modernization effort. The focus of our air defense modernization efforts now change from the theater area systems to our forward area systems. PATRIOT fielding and HAWK product improvement efforts are near completion. The integration of these two systems into NATO air defenses provides a first rate capability to counter all air breathing threats. As PATRIOT is the only deployed Tactical Ballistic Missile (TBM) killer in the free world, NATO will also have a limited Anti-Tactical Ballistic Missile (ATBM) capability.

While great progress has been made in modernizing theater systems, our tanks and fighting vehicles in the forward area are still defended by 1968 vintage air defense systems. This fact underscores the essential need for forward area air defense modernization. The Forward Area Air Defense (FAAD) System was initially defined by a special study group after the DIVAD Gun experience proved that one system alone, or even multiple weapons acting independently, cannot defeat the modern air threat in the forward area. Great progress has been made, but FAADS has taken its share of budget reductions. Especially hard hit in this area are Line of Sight-Forward-Heavy and the Non-Line-of-Sight systems. Given the radical change in the nature of the threat, our FY91 budget now reflects our best priorization of limited resources to support the critical modernization effort of our forward area air defense systems.

Line of Sight-Forward-Heavy (LOS-F-H) maneuvers with the Combined Arms Team to defeat the fixed wing air threat and provide long range anti-helicopter fires. After an extensive test of Non-Developmental systems, Martin Marietta's ADATS was selected for the LOS-F-H role. Low rate initial production, 4 fire units and 48 missiles for Production Qualification Testing, began in FY89. FDTE II tests in 1QFY90 and IOT&E firings in February (6 hits of 7 targets with 9 missiles) proved that ADATS is a first rate air defense system. Low rate production continues in FY90 with 6 fire units and 1[illegible]0 missiles following operational testing and Congressional certification. The FY91 request is for 13 fire units and 220 missiles.

Non Line of Sight (NLOS), or the Fiber Optic Guided- Missile (FOG-M) is a long range anti-helicopter and anti-tank system that can defeat targets masked by terrain and beyond the range of line-of-sight systems. The Boeing-Hughes Team was selected for the Full Scale Development effort which began in FY89. The Initial Operational Evaluation and Extended User Evaluation conducted in FY89 and FY90, have reduced development risks and affirmed the wisdom of Congressional guidance to proceed directly to the objective system. Though the Army recently deferred procurement, it will continue the comprehensive development of this revolutionary anti-helicopter and anti-armor technology.

Line of Sight-Rear (LOS-R), Boeing's AVENGER counters the predominantly fixed wing air threat to brigade and division rear areas. An exemplary model for Non-Developmental Item (NDI) procurement, AVENGER integrates the combat proven STINGER missile and a .50 caliber machine gun on a HMMWV to provide a day/night, shoot on the move, soldier friendly, line-of-sight system operated by a two-man crew. First Unit Equipped, a platoon in the 3rd Armored Cavalry Regiment, occurred in April 1989, only 20 months after AVENGER's selection. Full Scale Production begins in FY90 with 122 fire units. In FY91 the Army requests authority to start a five year multi-year procurement with 88 systems (average 132 per year).

The FY91 STINGER-Reprogrammable Microprocessor (RMP) procurement request is for 6,922 missiles. The third generation of the combat proven STINGER uses a passive infrared (IR) and ultraviolet homing seeker to guide on the target despite enemy countermeasures. STINGER-RMP placed all missile guidance functions under software control, allowing the missile to be modified by software changes in an external module, rather than making expensive hardware changes to overcome future threats. Initial deployment of STINGER-RMP began in FY90. Applications include the AVENGER, Air-to-Air STINGER, and Man Portable Air Defense Systems (MANPADS).

FAAD Combined Arms Initiatives (CAI) provide ground and aerial combat elements an enhanced capability for self defense against enemy helicopters. Air-to-Air STINGER (ATAS) is in production for OH-58C/D helicopters.

PATRIOT is an advanced, long range, high to medium altitude air defense system which counters the evolving and extensive fixed wing threat to special theater assets, POMCUS, and essential, reinforcing lines of communications. PATRIOT's fast reaction time and multiple engagement capability in severe Electronic Counter-Measure (ECM) environments deny the threat saturation attack options.

PATRIOT ATM Capability (PAC-1), which has been deployed, ensures that PATRIOT can continue the fight in the face of TBM threats. First fielded in 1986, ten PATRIOT battalions are now operationally deployed. FY90 procurement completed the Army's buy of PATRIOT ground support equipment (GSE) and missiles. The FY91 budget request provides for completion of PAC-2 development and procurement of 817 PAC-2 missiles to attain a limited asset defense against TBMs.

HAWK is a modular, mobile, all weather, missile system which provides vital, low to medium altitude air defense of critical installations and maneuver forces. The venerable HAWK system has been kept current with the threat by timely insertion of new technologies. HAWK battalions have been reorganized into more streamlined and efficient fighting organizations. The FY91 request continues production of Phase III Mod kits and associated maintenance support items.

In summary, FY91 is an important year for the Army's Air Defense Modernization Plan. It is the first step by which warfighting capabilities in mature and contingency theaters are significantly improved through: fielding of the FAAD AVENGER system; formation of Corps Air Defense brigades; and fielding of a Tactical Missile Defense capability, PATRIOT PAC-2, in theater air defense forces.

## FIRE SUPPORT MISSION AREA

The Multiple Launch Rocket System (MLRS) remains the centerpiece of the Army's counterfires and deep attack capability. It provides the Division and Corps commanders an all-weather indirect fire system for delivery of devastating firepower. The FY91 request of $313.9M will buy 24,000 rockets and 66 launchers to support deployment plans. This number of rockets represents the minimum sustaining production rate for this program. The Army would like to buy rockets at a more economic production rate as Congress has previously suggested. However, availability of funds combined with a need to accelerate retirement of the aging, manpower intensive, and less capable 8" howitzer from the active and reserve forces, compels the Army to prioritize its limited resources to the procurement of launchers. Supporting this procurement strategy is the significantly longer production lead-time for launchers vice rockets. Should the Army urgently require additional MLRS equipment, rocket production responds faster than launcher production.

Additionally, the FY91 request includes $17.5M to modify current MLRS systems, continuing the M270 (MLRS) Self- Propelled Loader Launcher improvements started in FY88. These modifications, when applied to the M270, permit the launching of the ATACMS as well as all other members of the MLRS Family of Munitions.

The MLRS is an international cooperative development and production program between the United States, Germany, France, Italy, and the United Kingdom under a July 1979 Memorandum of Understanding. Development information was shared equally among the partners and production capability was established both in the US and Europe. As a result of this successful international cooperative effort, MLRS rocket production began in Europe in FY89 with the first M270 launchers produced in Feb 90.

On 29 November 1984, a development contract was signed with the United Kingdom, France and Germany to co-develop the Terminal Guidance Warhead (TGW). This antiarmor warhead will be mated to the MLRS rocket and fired from the MLRS launcher. MLRS-TGW is being developed as a venture between the contractors Martin-Marietta of the United States, Diehl of West Germany, Thorn EMI of the UK, and Thompson-Brandt Armaments of France; collectively the developer is known as MDDT. TGW is currently in a 39 month system demonstration which began in July 89. Co-development costs are shared--the US pays 40 percent and each of the other participating nations pays 20 percent.

Another critical Fire Support program in our missile procurement request is the Army Tactical Missile System (ATACMS). We are requesting $168.7M for the first year of full rate production in FY91 to purchase 318 missiles. This system is a conventional semi-ballistic missile designed to attack enemy second echelon forces. The ATACMS will be fielded with the M74 anti-personnel/anti-material (AP/AM) warhead to attack soft targets such as air defense sites, assault formations, command, control and communication centers, Forward Area Refuel-Rearm Points (FARPS), and threat missile delivery systems. ATACMS will be fired from a modified version of the M270 (MLRS) Self-Propelled Loader Launcher. Third quarter of FY90 will see the initial deployment of the modified launchers to Europe. By using the MLRS launcher, ATACMS will provide a significant additional capability to MLRS units without requiring more force structure. All US MLRS launchers will be capable of firing ATACMS. The ATACMS will have growth potential to accommodate future warheads with smart submunitions to attack second echelon moving armored vehicles and other high value targets. The block I ATACMS completed a very successful development test in Dec 90 and began operational testing on 5 March 1990. The First Unit Equipped date in Europe is 4QFY90.

## CLOSE COMBAT MISSION AREA

The FY91 HELLFIRE request of $123.3M buys 3,002 missiles and represents the ninth year of production. The HELLFIRE was previously procured under a dual-source competition strategy; Martin-Marietta and Rockwell International, competing annually for a percentage of the procurement. Unlike previous years, there was a provision this year that the government could down-select to a single contractor. Based upon the competitive bids received from Martin and Rockwell, Rockwell was awarded 100 percent of the FY90 production HELLFIRE quantities with priced options for the FY91 and FY92 quantities. The missiles to be procured in FY91 are the second production buy featuring an improved tandem warhead which defeats evolving enemy threat armors. The tandem warhead with its improved lethality keeps it effective throughout the next decade. HELLFIRE is central to the Aviation anti-armor role.

The Tube Launched Optically Tracked Wire Command-Link Guided Missile (TOW) is the Army's heavy anti-armor/assault weapon system. The FY 91 request of $219.5M buys TOW 2B missiles, night sights and other ground support equipment.

TOW is capable of operation from the ground, vehicles and helicopters for effective performance against tanks, fortifications and other targets. It is mounted on the Improved TOW Vehicle, the M113 Armored Personnel Carrier, the Bradley Fighting Vehicle, the HMMWV and the COBRA.

Since its initial introduction, TOW has been effectively product improved to keep pace with the threat. The current production version, TOW 2A, represents the fourth generation system having much improved lethality. This version was phased into production in FY87. The TOW 2A has now been fielded to units in Europe. The TOW 2B missile, which improves system lethality even further, is now in development with production planned for the 4QFY90.

Mr. Chairman, the Army solicits yours and your committee's continued support in providing the best warfighting equipment for our soldiers in the field.

Mr. **Murtha**. General Rigby.

## SUMMARY STATEMENT OF GENERAL RIGBY

General **Rigby**. It is my pleasure to present the Other Procurement Army activity 1, which is Tactical and Support Vehicles and activity 3, which is Other Support Equipment.

We are appreciative of Congress' and especially this Committee's support in these areas in the past.

I would like to quote from a letter that the Battalion Commander of the Fourth Battalion, 325th Parachute Infantry Regiment sent from Panama to my commander, General Tuttle.

"* * * Please pass this on to all involved with the HMMWV. One of my HMMWVs was in an ambush. All four tires were shot out, but it was able to drive another two-plus miles to safety * * * awesome vehicle. Saved the six soldiers riding in it. Another HMMWV was shot head on * * * driver's glass didn't shatter or crack * * * saved his face and stayed on course."

I point this out, as I think we all can be proud of the fact that six soliders are alive today, because we have provided them with excellent equipment.

The fiscal year 1991 budget continues the successful HMMWV program. We are in the third year of a five-year multiyear production contract.

We begin procurement of the Family of Medium Tactical Vehicles, which is the keystone program for upgrading our medium tactical fleet.

We will complete the trailer buy and do the second year of the tractor buy for the HETS, which will enable us to safely haul the 70-ton Abrams tank. We will also continue the second year of the Multiyear buy for the Palletized Loading System, keystone program for our heavy truck fleet.

The other part of the budget that I will present, Other Support Equipment, provides a variety of equipment that protect and enhance the combat capability of our soldier and the weapons systems that he uses. Examples are generators, medical equipment, chemical protective equipment, countermine equipment, and training devices.

Sir, as always, we request your support of these programs that directly support the combat forces. I believe we have achieved a reasonable program balance even in a declining TOA situation. The programs we present today are designed to help us transition to a smaller, more capable force.

Sir, that concludes my statement.

[The statement of General Rigby follows:]

# STATEMENT OF
# MAJOR GENERAL JOE W. RIGBY
# DEPUTY FOR COMBAT SERVICE SUPPORT
# OFFICE OF
# ASSISTANT SECRETARY ARMY (RESEARCH, DEVELOPMENT & ACQUISITION)
# DEPARTMENT OF THE ARMY
# OTHER PROCUREMENT, ARMY, ACTIVITIES 1 AND 3

Mr. Chairman and members of the committee, it is my pleasure to provide the Other Procurement, Army (OPA) Appropriation Amended Budget request for FY 91. Within the OPA budget my discussion will be limited to activity one -- Tactical and Support Vehicles and activity three -- Other Support Equipment.

The recent events in Eastern Europe and the declining threat from the Soviet bloc have not changed the need for the United States to maintain a credible military deterrent. Although the Soviet Union is scaling back their forces they have not abandoned their modernization efforts to improve their quality and overall combat capability. Further, with the instability in Latin America, the Middle East/Asia, the uncertainty in Korea, the third world military modernization and the increasing threat of low intensity conflicts, the need for an Army capable of responding to contingencies has increased. The challenge is how to sustain US strength and readiness within the increasingly constrained defense budget. The Army's approach to this challenge is to transition to a smaller, more capable force with a focused modernization program. Although the FY 91 Amended Budget has been realigned to reflect a reduction in resource allocations, the Army has maintained a balance in the investment accounts between the acquisition of new combat systems and the continued improvement of unit readiness with the acquisition of support equipment. The Amended OPA 1 & 3 FY 91 Budget continues the emphasis on productivity enhancing programs to replace yesterday's labor intensive methods with modern efficient equipment which will allow the Army to complete the combat service support mission with fewer soldiers.

The OPA 1 and 3 programs are major contributors to maximizing the fire power and mobility of modernized combat systems by providing the high volume of ammunition and supplies required on time, across varied terrain of the battlefield, and by enhancing total combat mobility.

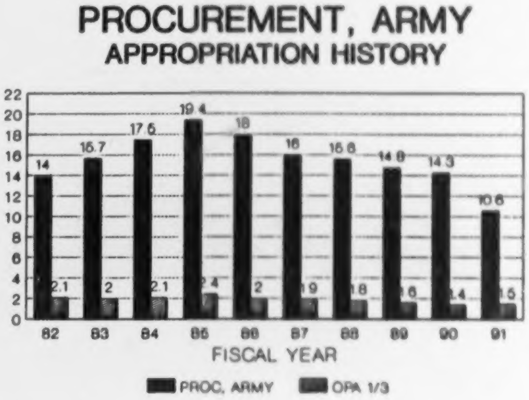
The OPA 1 programs support the total Army worldwide from non-tactical vehicles in CONUS to tactical vehicles OCONUS. Tactical and support vehicles contribute to unit mobility and combat effectiveness by providing the infantry units with weapon carriers and troop transport, the medical units with vehicles to evacuate injured personnel, and the artillery and armor units with the means to transport ammunition and POL. In addition, forward deployed units are supported and sustained by tactical vehicles transporting a multitude of items from the M1A1 tank to command, control, communications and intelligence systems to food and supplies.

Combat effectiveness is also multiplied by meeting specialized equipment needs of the soldier and field commanders. The OPA 3 program provides for a variety of specialized equipment such as chemical defense equipment required for contamination avoidance, individual protection and decontamination; enhancing front line mobility, counter-mobility and survivability with the capabilities of the M9 Armored Combat Earthmover (M9 ACE); developing and procuring tactical water support equipment to ensure adequate potable water support throughout the theater of operation; and by providing state-of-the-art medical equipment and care to give the wounded soldier the greatest chance of survival and return to duty.

The standard family of tactical electric power sources provides electrical power to our modernized command, control, communications and intelligence equipment on the battlefield while training devices and simulators contribute to combat readiness of our field units by minimizing the impact of training constraints such as lack of time, funding, safety, environmental concerns and restricted use of training areas.

As you see from my examples, the OPA 1/3 appropriations provide varied support to the soldier in the field in mobility, efficiency, and sustainment. The items procured in this appropriation provide the critical infrastructure to support the Army and its field equipment. With the emphasis on a smaller, more capable force, it is essential that we maintain this infrastructure to insure we do not create an imbalance of combat systems to support systems thus reducing overall combat efficiency.

Chart 1 shows that the OPA 1/3 programs have, on average, maintained approximately 12 percent of the procurement appropriation since FY 82. The Amended FY 91 budget supports the logistics required to sustain and maintain the forces in a combat ready status. Moving soldiers, supplies and equipment rapidly and efficiently is vital to the success of both peacetime and wartime missions and highlights the importance of the Tactical and Support Vehicles and Other Support Equipment programs, (OPA 1 and 3).



$'S IN BILLIONS

CHART 1

Chart 2 is a comparison of the FY 90/91 Bush Budget and the FY 91 Amended Budget for OPA 1. The delta in FY 90 is the Congressional adjustment to the Army's program. The FY 91 program reductions were due to fact of life adjustments pertaining to the executability of programs, i.e., slippage of test schedules, contract savings generated from award of the 5 ton/7 1/2 ton trailers and anticipated contract savings from HMMWV program.

### OPA 1 - COMPARISON OF THE FY90/91 BUSH BUDGET AND THE FY91 AMENDED BUDGET

| | FY1990 | FY1991 |
|---|---|---|
| FY90/91 BUSH BUDGET SUBMIT | 446.3 | 828.5 |
| FY91 AMENDED BUDGET SUBMIT | 405.2 | 658.6 |
| DIFFERENCE | -41.1 | -169.9 |

CHART 2

The transitioning to a smaller force does not alter the need to modernize the Army's tactical wheeled vehicles. The FY 91 amended program continues to support the Army's Tactical Wheeled Vehicle Modernization Plan, which will maximize the tactical wheeled vehicle contribution to support warfighting capability and improve battlefield survivability while reducing peacetime operations and support costs.

The amended FY 91 program continues the successful High Mobility Multipurpose Wheeled Vehicle (HMMWV) program which is in the second year of a new five year multiyear contract and continues the procurement of a Heavy Equipment Transporter System (HETS) which permits us to transport the 70 ton Abrams tank. We also continue the multiyear procurement of the critically needed Palletized Loading System (PLS) which will significantly improve the efficiency of corps ammunition distribution systems. The procurement of the new, state-of-the-art Family of Medium Tactical Vehicles (FMTV), which will start to correct our current medium tactical fleet deficiencies, is also planned in FY 91.

A comparison of the FY 90/91 Bush Budget and the FY 91 Amended Budget for OPA 3 (Chart 3) shows an increase in the FY 90 program of $63.6 million and a decrease of $138.7 million in the amended FY 91. The increase in FY 90 is due to the Congressional transfer of the Installation of Modification Kits and the Industrial/Depot Maintenance Equipments lines into the OPA account from other budget activities. The reductions in the FY 91 amended request were made on the basis of program execution status, priority, and affordability within today's constrained resources.

### OPA 3 - COMPARISON OF THE FY90/91 BUSH BUDGET AND THE FY91 AMENDED BUDGET

| | FY1990 | FY1991 |
|---|---|---|
| FY90/91 BUSH BUDGET SUBMIT | 988.0 | 1006.9 |
| FY91 AMENDED BUDGET SUBMIT | 1051.6 | 868.2 |
| DIFFERENCE | +63.6 | -138.7 |

CHART 3

The amended FY 91 OPA 3 request continues to support the procurement of the broad spectrum of equipment in this activity with continued emphasis on the procurement of key nuclear, biological and chemical (NBC) defense systems, Army medical equipment and training devices.

The lack of a credible NBC defense would jeopardize military readiness since the NBC capabilities impact the entire battlefield. The continued procurement of the NBC Reconnaissance System will fill the operational need to execute contamination avoidance throughout the depth of the battlefield, and is a quantum leap forward in our NBC defense posture. Procurement also continues on modernized masks and NBC detection systems.

Training devices and simulators are a cost effective means to ensure our soldiers are fully prepared for combat. The funding in the amended FY 91 budget continues the procurement of advanced technology to meet the challenge of training and sustaining tomorrow's Army.

For the Amended FY 91 Budget, the Army's emphasis is on maintaining a smaller more capable force (highly trained and ready to fight). The challenge has, and will continue to be, that of providing our soldiers with state-of-the-art support and equipment needed to maintain deterrence and to prevail in case of war with increasingly constrained resources.

With your continued support the Army can continue to maintain high unit readiness, to modernize our equipment and to focus on emerging technologies that promise potential for the procurement of safer, more efficient, more cost effective combat support and combat service support equipment.

This completes my opening statement. I would like to insert a more detailed statement for the record. I have several key individuals who manage the OPA 1 and 3 major programs here with me today:

Mr. Mel Burcz, Program Executive Officer for Combat Support, and

Mr. Jim Emahiser, Deputy Commander, US Army Troop Support Command. We are prepared to address any questions you might have on OPA 1 and 3 programs.

Budget activity one (OPA-1), Tactical and Support Vehicles, provides the acquisition of tactical wheeled vehicles, trailers, non-tactical vehicles, associated equipment and spare parts which are essential for effective Army combat service support and unit mobility throughout the Army's forward deployed, contingency and reinforcing forces. The Army's tactical wheeled vehicle programs within OPA-1 are critical to ensure continuous, versatile, deployable and efficient service support on the battlefield as well as in peacetime. Trucks are the backbone of a complex logistics system which must provide increasingly modern weapon systems with an uninterrupted logistics lifeline of ammunition, fuel, repair parts, water and supplies delivered whenever and wherever required to keep the peace or win the battle.

The Army's truck fleet generally consists of light, medium and heavy tactical wheeled vehicles as depicted in Chart 4. Also depicted here are the trends we see from the past, through the present, to the future of our tactical wheeled vehicle fleets.

**FAMILIES OF VEHICLES**

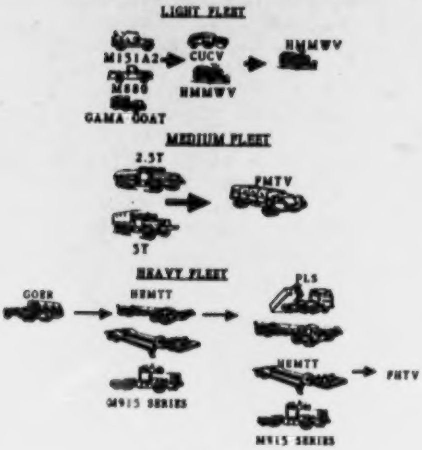


CHART 4

The light fleet includes the High Mobility Multipurpose Wheeled Vehicle (HMMWV) and the Commercial Utility Cargo Vehicle (CUCV), as well as three older models which are being retired; Jeeps, Gama Goats and M880 commercial vehicles. These vehicles are generally within the 1/4 ton to 5/4 ton payload range, and are used in command and control, ambulance, shelter carrier and weapons carriers.

Multiple models of both 2 1/1 ton and 5 ton trucks comprise today's medium fleet. These vehicles are the Army's workhorses, performing a wide variety of missions from individual unit mobility to an assortment of tactical, logistical, and support functions.

Our heavy vehicle fleet consists of vehicles above a nominal 7.5 ton class and includes the 10 ton Heavy Expanded Mobility Tactical Truck (HEMTT) used primarily to refuel and rearm today's modern weapons systems, and heavy tractors and associated trailers which provide line haul of supplies and movement of heavy equipment such as construction equipment and tanks.

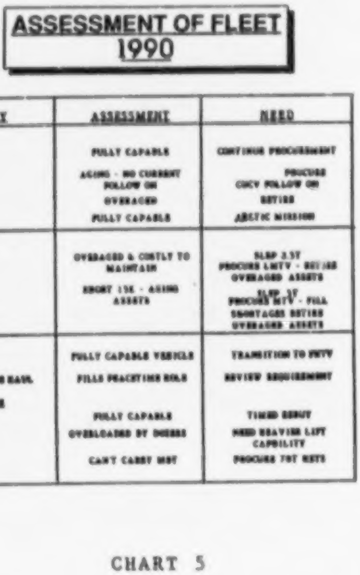
The Army's truck programs have received fluctuating levels of funding support since FY 1981. We have worked hard to modernize and upgrade our vehicle fleets and to maintain an effective balance between weapon system modernization programs and support systems. While the OPA-1 program has been reduced along with other investment accounts, it maintains the balance necessary to keep the fighting force effective by supporting the mobility and sustainment needs of the soldier and field commander.

As the 1980's began, we addressed the need to improve the light fleet, upgrade the heavy fleet to support new weapon systems fielding and maintain the medium fleet. In the early 1980's the Army began an aggressive program to modernize the light fleet and to replace aging and unsafe vehicles. As a result, approximately 42,000 Tactical HMMWV's and 60,000 commercial CUCV's have been fielded to date. Many older vehicles still remain in the light fleet; however, a number of these older vehicles have been washed out of the system as uneconomical to retain.

Our initial focus on improving the readiness and capability of the light fleet and upgrading the heavy fleet limited our efforts to both modernize and fill shortages in the medium fleet. Competing priorities and systems affordability permitted a relatively steady, but reduced, flow of 5 ton trucks into the fleet despite our significant shortages and the aging 2 1/2 ton inventory which now averages more than twenty one years of age. Even with the improved M939A2 5 ton truck, we obtain no significant technological advances in design. We added no 2 1/2 ton trucks nor have we improved on the 1950's design and technology of the 2 1/2 ton truck, the last of which were produced in 1976. Consequently, our 2 1/2 ton trucks and the majority of our 5 ton trucks do not meet today's federal highway operating standards. Most significant of these are the Department of Transportation (DOT) standards for brake systems. The shortage of 5 ton vehicles, which impacts readiness, and the increasing age of our 2 1/2 ton trucks which creates a significant availability and costly maintenance burden, detract from a unit's ability to accomplish its primary mission as well as reduces its overall readiness.

We have also concentrated on modernization of our heavy truck capability through previous year procurements of the 10 ton Heavy Expanded Mobility Tactical Truck (HEMTT). This system, consisting of cargo vehicles, fuel tankers and heavy wreckers, has been instrumental in our ability to field and effectively support such tactical weapon systems as the Apache Helicopter, Multiple Launch Rocket System, Patriot Missile and M1/M1A1 Abrams Tank.

Our efforts in the 1980's have left us with an Army truck fleet whose status is summarized in Chart 5.



**ASSESSMENT OF FLEET**
**1990**

| CATEGORY | ASSESSMENT | NEED |
|---|---|---|
| **LIGHT** | | |
| HMMWV | FULLY CAPABLE | CONTINUE PROCUREMENT |
| CUCV | AGING - NO CURRENT FOLLOW ON | PROCURE CUCV FOLLOW ON |
| M151 | OVERAGED | RETIRE |
| SUSV | FULLY CAPABLE | ARCTIC MISSION |
| **MEDIUM** | | |
| 2.5 TON | OVERAGED & COSTLY TO MAINTAIN | SLEP 2.5T<br>PROCURE LMTV - RETIRE OVERAGED ASSETS |
| 5 TON | SHORT 15% - AGING ASSETS | SLEP 5T<br>PROCURE MTV - FILL SHORTAGES RETIRE OVERAGED ASSETS |
| **HEAVY** | | |
| HEMTT | FULLY CAPABLE VEHICLE | TRANSITION TO FHTV |
| COMM'L LINE HAUL | FILLS PEACETIME ROLE | REVIEW REQUIREMENT |
| **EQUIP TRANS** | | |
| LIGHT | FULLY CAPABLE | TIMED REBUY |
| MEDIUM | OVERLOADED BY DOZERS | NEED HEAVIER LIFT CAPABILITY |
| HEAVY | CAN'T CARRY MBT | PROCURE 70T HETS |

CHART 5

The funding trend already described for OPA-1 continues in FY 91. This trend represents the hard trade-offs within and outside the OPA accounts needed to give the Army the most combat effective force within constrained available resources. In the OPA-1 account we have taken a hard look at program priorities and affordability while working to preserve the unit readiness improvements, improved combat capabilities, and productivity programs funded and fielded since the mid-1980's.

OPA-1 reductions reflect program execution status, priority, and affordability within today's constrained fiscal environment. Although the Army faces reduced availability of resources and the overall rate of our modernization efforts may have slowed, our continued emphasis on increased productivity programs to replace more labor intensive methods through modern, efficient vehicles will permit the Army to perform the combat service support mission with fewer soldiers. The continued procurement of proven, more modern and efficient trucks, and the transition to several new programs will result in additional gains in unit readiness, as well as reduced operations and support costs.

In response to the onset of more austere budget support, as well as the recognition by the Army, DOD and Congress of the need for a balanced, stable and effective long term program for trucks, the Army has developed its Tactical Wheeled Vehicle Modernization Plan (TWVMP). This plan, represents an intensive effort to identify a clear and executable roadmap for the development, acquisition and fielding of modern trucks to maximize tactical wheeled vehicle contributions to warfighting capability and battlefield survivability while minimizing our peacetime sustainment costs.

The TWVMP provides a focus for an intelligent and constant effort to effectively modernize our tactical wheeled vehicle fleet over thirty years -- through 2020. This landmark plan for tactical wheeled vehicles includes the following key points:

- Implementation of a comprehensive Service Life Extension Plan (SLEP) for selected 2 1/2 ton and 5 ton vehicles in the medium fleet. With SLEP overaged and maintenance intensive medium vehicles can be rehabilitated for less than the cost of a new vehicle. This provides additional service life and cost effective operation. The timing and size of this program is being reassessed in light of current force structure decisions.
- Establishes a new procurement objective based on the filling of force packages with vehicles within useful life based on the timing of the force package's introduction to combat. Under this change in how we determine our procurement objective to meet Army operational needs, we will fill force package one - first to fight units - to 100 percent with vehicles within useful economic life and the remaining force packages to 70 percent with vehicles within/beyond economic life. This approach supports the Army strategy to modernize by thirds sequentially with top priority to units that are first to fight regardless of component.
- Establishes a disciplined washout policy by vehicle type. Under this policy we are selectively retiring old, difficult to maintain, costly to operate vehicles like the Mule, Gama Goat, gasoline engine 2 1/2 ton trucks, M880, and Goer and replace them with more modern, efficient, and capable vehicles. This policy is supported by an expanded sample data collection program to help us identify when our vehicles reach economic useful life.
- Supports and emphasizes the advantage of vehicle commonalty by reducing the numbers and types of vehicles in each fleet. In the light fleet, we will make a decision

whether to continue with a mixed HMMWV/CUCV fleet or transition to an all HMMWV type light fleet. We already are moving forward with the single family of medium tactical vehicles to meet our workhorse medium fleet needs with reduced operating costs and improved efficiency. In the heavy fleet, where we now find our most diverse mix of vehicle types, we will determine the feasibility of eventually moving to a single family of heavy tactical vehicles, probably based on the new and very versatile Palletized Loading System.

In summary, the Tactical Wheeled Vehicle Modernization Plan provides us the tools like SLEP, improved vehicle technology and families of vehicles to reduce our sustainment costs. The plan is currently under revision to reflect force structure decisions as we transition to a future force.

Let me now turn to some of the specifics of our FY 91 request. Our FY 91 OPA-1 budget request for the procurement of Tactical and Support Vehicles and the associated RDT&E budget request supports the following initiatives:

In the heavy fleet it capitalizes on the increased productivity, interoperability and efficiency offered by the Palletized Loading System and procures a critically needed Heavy Equipment Transporter System capable of transporting the 70 ton M1A1 series main battle tank. In the medium fleet, we will begin procurement of the modern family of medium tactical vehicles which offers the most current automotive technology, improved mobility, reduced operating and support costs, to replace the old, expensive to maintain, 2 1/2 ton trucks and to help fill existing 5 ton truck shortages. In the light fleet, we will continue to procure HMMWV's to support major systems fielding and replace some of the older vehicles in the inventory. We will also continue our support for the SUSV, trailers, and non-tactical vehicles which are also very important and required to meet special requirements.

With these initiatives in mind, I will begin with the heavy vehicle fleet. A five year multiyear contract for the 16.5 ton Palletized Loading System (PLS) will be awarded in June 1990. The Amended FY 91 Budget supports the second year of this multiyear contract. In FY 91, we will also conduct the initial production testing (IPT) of the PLS at Aberdeen Proving Ground (May 1991 thru December 1991). The new PLS is a tactical wheeled vehicle system composed of a 16.5 ton truck with integral self load/unload capability, a companion 16.5 ton trailer and demountable flatracks which are interoperable with NATO allies. This nondevelopmental item (NDI) program will provide improved productivity and greater efficiency in Army corps ammunition distribution by reducing dedicated tactical vehicles, materiel handling equipment (MHE) and ammunition personnel requirements, thus releasing these assets to other essential combat service support missions. Its ability to rapidly load and unload large tonnages of ammunition with fewer supporting personnel and less material handling equipment greatly increases not only ammunition throughput capability but also battlefield survivability, producing an important combat multiplier.

Our current M746/M911/M747 series Heavy Equipment Transporters lack the capacity to safely and effectively provide transporting and maintenance evacuation for the 70 ton M1 series main battle tank. The Heavy Equipment Transporter System (HETS) will meet this requirement and provide the capability to deploy, support and evacuate the M1 tank and also meet our Host Nation Support (HNS) commitments with the Federal Republic of Germany. The Secretary of Army changed the acquisition strategy in October 1988 from a system approach to seeking separate contracts for the HETS tractor and trailer. The program was restructured and a contract for the trailer was awarded to Southwest Mobile System in April 1989, with fielding to begin in November 1990. A contract for the tractor was awarded to Oshkosh Truck Company in January 1990, with fielding planned for March 1992.

Let me now address that portion of our FY 1991 budget request which supports the medium fleet. As I previously indicated these vehicles are the workhorses of the Army. The system is designed to operate worldwide on primary and secondary roads, trails, and cross-country terrain. In wartime they provide Army units with required tactical mobility. This includes the transportation of the unit's supply, water, kitchen facilities, spare parts, and frequently fuel and ammunition. In peacetime they perform the same missions during the conduct of unit training and mobilization exercises.

The Family of Medium Tactical Vehicles will consist of a 2 1/2 ton payload Light Medium Tactical Vehicle (LMTV) and a 5 ton payload Medium Tactical Vehicle (MTV) in multiple body styles and with companion trailers. It will incorporate current automotive technology and maximum parts commonalty to perform the same line haul, local haul, unit mobility and supply missions now accomplished by the older 2 1/2 ton and 5 ton trucks. The FY 91 Amended Budget request initiates the first year of a five year multiyear procurement contract. Contract award is scheduled for April 1991 after completion of performance and durability testing of the prototype vehicles which were delivered in January 1990.

We believe the continued full support of this critical NDI truck program to be the most effective and timely means of acquiring a family of 2 1/2 ton and 5 ton trucks which incorporates the latest automotive technology, provides increased reliability, and maximizes component level commonalty within both payload classes, while resolving our medium truck fleet age, cost of operation, and shortage problems.

I will conclude my discussion of OPA-1 programs with the Army's light vehicle fleet which includes the HMMWV and the CUCV as well as older Jeeps (M151), Gama Goats, and M880 commercial vehicles. These vehicles are within the 1/4 ton to 5/4 ton payload range and are primarily used in command and control roles.

We plan to continue our procurement of the highly successful HMMWV. The funds provided in the FY 91 budget ensure the continuation of the new five year multiyear contract for approximately 30,000 more HMMWV's. The multiyear contract was awarded in August 1989, this is in keeping with Congressional direction in the FY 88 appropriations act.

The programs I have briefly covered include over 70 percent of the OPA-1 budget request. We have also requested funds in FY 91 to support the rest of the Army's tactical and support vehicle fleet. We plan to complete the Army's procurement of the Small Unit Support Vehicle (SUSV). This special purpose, tracked vehicle will be used by the 6th Infantry Division (ID) (Light) in Alaska, National Guard units in Minnesota, North Dakota, Vermont, and Alaska and the Army Reserve in Minnesota and Massachusetts to transport essential organizational equipment which otherwise would be back-packed or carried on a hand-towed sled. The FY 91 budget request also provides funds for a variety of lower dollar value programs including urgently needed trailers and non-tactical vehicles. The trailers are particularly important due to their key role of transporting equipment and supplies to sustain our combat forces. The trailers include the 400 gallon water trailer which is a DA Designated Critical Item required to fill total package fielding of major systems, such as the Apache Attack Helicopter, Patriot Missile System, Multiple Launch Rocket System (MLRS), and Meteorology Data System. The

22 1/2 ton semi-trailer will be used as part of the Reverse Osmosis Water Purification Unit (ROWPU). The 7 1/2 ton Dolly sets are required to support fielding of the Deployable Medical System (DEPMEDS) and the Aviation Intermediate Maintenance System.

In summary, the Amended FY 91 Budget continues to support the Army's Tactical Wheeled Vehicle Modernization Plan which includes significant programs in the heavy and medium tactical vehicle fleets, as well as continuation of our successful HMMWV light vehicle program. Effective execution requires stable and sufficient funding to procure the required quantities in competitive multiyear contracts that are attractive to industry and are executable. The Army has planned the FY 91 programs to provide these essential procurements in a manner that will best serve the needs of tactical and support units. This year represents a transition point in our truck modernization effort with the tactical wheeled vehicle modernization plan as the blueprint to carry us forward into the future to a smaller more versatile, deployable and lethal Army.

I will now discuss the Amended FY 91 request for Other Support Equipment (OPA 3).

The Other Support Equipment budget activity consists of thirteen functional areas thus providing for a myriad of equipment covering a large portion of the logistical and defensive equipment spectrum. Although the equipment included in these thirteen functional areas are not glamorous weapon systems, they are important to the Army and the individual soldier. Items such as field kitchens, laundry units, material handling equipment, deployable hospitals, medical equipment, petroleum and water distribution systems, chemical defensive equipment, generators, etc. are needed to operate in austere, isolated contingency areas.

I will now discuss the specifics by functional area of the Amended FY 91 Budget for OPA 3.

O Chemical Defensive Equipment, the Army's request is $99 million in FY 91. The threat of chemical and/or biological warfare is pervasive, growing, and rapidly changing in character. Lessons of the Iran/Iraq war point to the significance of these items. Significant items of equipment being procured to insure survival are:

1) NBC Reconnaissance System, an armored vehicle capable of performing NBC reconnaissance on primary, secondary and cross-country routes wherever forces are deployed. This vehicle will detect, identify and mark areas of NBC contamination quickly and accurately. Should NBC agents be detected, this vehicle can provide the commander information necessary to formulate a scheme of maneuvers to avoid the threat.

2) Protective masks for the foot soldier, tanker and aviator. The masks provide a very significant operational improvement over the current family of protective masks resulting in enhanced survivability in the chemically contaminated battlefield. These are the first new masks for the soldier in 25 years.

3) Chemical Agent Monitor (CAM), a critical, hand held battlefield item for monitoring chemical agent contamination on personnel and equipment. The CAM provides the capability to detect and discriminate between vapors of nerve and mustard agents.

4) The Decontamination Apparatus provides the capability for the battalion to provide its own decontamination in forward positions, and the

5) Collective Protective Equipment converts buildings into protective shelters, allowing soldiers to work in an uncontaminated environment and converts the temper tent into a

positive pressure NBC shelter for field medical hospital operations.

O Our high mobility modern weapon systems must not be restricted by rivers and gaps. The Light Assault Bridge will continue in full scale engineering development. This bridge will provide a dry gap capability for the Army's light division. The Heavy Assault Bridge which will provide a dry gap military load class of 70 tons for the M1 Abrams tank is also in development.

O The Engineer (Non-Construction) Equipment category contains $72 million in the amended FY 91 budget request. The final production year for the M-9 Armored Combat Earthmover (M-9 ACE) represents 23 percent of the total acquisition quantity of 580 vehicles. The M-9 ACE is mobile and possesses the ability to rapidly construct fighting positions and obstacles, making it an important combat multiplier for field commanders. The FY 91 amended request continues the procurement of the XM139 Mine Dispenser. This dispenser provides a greater capability to quickly emplace tactical mine fields from both ground and airborne deployment modes and supports the Volcano system which is the primary land mine system used today. The Vehicle Magnetic Signature Duplicator (VEMASID) transitions from RDT&E into production in FY 91. This coil provides a false signal that causes magnetic mines to detonate prematurely, thus enhancing soldier and equipment survivability.

The $29 million in FY 91 requested for the Combat Service Support functional area provides continued acquisition of numerous items. Included are field kitchens which are the main stay for the field feeding system and laundry units to provide sterile textiles in support of tactical hospitals. Procurement of air conditioners continues through the 1990's with requirements to support major systems such as missile, aircraft and electronics equipment. The Rigid Wall Shelter Command Post currently in the final stages of RDT&E will start procurement in FY 91 and provide the Army with flexibility, commonalty, and operational compatibility needed to direct and control forces in a fast paced and highly active combat situation. Each of these diverse items serves a distinct and essential function in sustaining our combat forces.

O The procurement request for the Petroleum program totals $72 million in FY 91. The majority of these program dollars support continued acquisition of the Southwest Asia Petroleum Distribution System (SWAPDOP) required to receive, store and distribute bulk petroleum fuels to all DOD land based forces in Southwest Asia or in any other undeveloped theater to meet other worldwide contingencies. The use of tactical pipeline is the most efficient and least manpower intensive method of distribution of large quantities of fuel over extensive land distances. Also included in this program are storage tanks and pumps used to store and move fuel in POL units worldwide.

O The Army continues to replace overaged, unsupportable and obsolete water purification units by requesting $19 million in FY 91. The 3,000 Gallon Reverse Osmosis Water Purification Unit (ROWPU) is the primary item being procured. It provides the capability for purification of brackish/salt water and for the removal of NBC contaminants. This is a major improvement over older purification units which could purify only nonpotable fresh water. FY 91 starts a fully competitive follow-on multiyear contract for the ROWPU. Numerous support items for the storage, transportation and distribution of water are also contained in this program.

O In FY 91 the request of $60 million provides for vital Deployable Medical Systems (DEPMEDS). DEPMEDS consists of standardized modular groupings that can be configured into hospitals for use anywhere in a wartime theater of operations. Various types of hospitals can be created by mixing the standard modules (e.g., operating rooms, laboratory, x-ray) that incorporate the latest in medical technology. The system includes both the medical and non-medical associated items of support equipment required for each type of hospital.

O Medical Support Equipment funded at $72 million in FY 91 provides for the procurement of investment equipment to support health care programs in Army fixed medical treatment facilities worldwide and includes equipment for major medical military construction Army projects. This program also funds the replacement of worn-out and obsolete equipment and provides new technologies essential to modern medical practice.

O A budget request of $8 million in FY 91 procures Maintenance Equipment which supports combat and tactical weapon systems. Many of the shop equipment sets being procured have multi-applications for Army maintenance organizations tasked with maintaining and repairing combat and tactical weapon systems. A portion of this request buys explosive ordnance disposal equipment which provides the capability to examine, identify, and render ordnance to a safe status in an effective and safe manner.

O In the Construction area $5 million is required in FY 91. This initiates a new multiyear procurement contract for the Small Emplacement Excavator (SEE). The new multiyear contract will be for the High Mobility Entrencher (HME) which is a SEE variant. This configuration uses the basic tractor as the SEE but with a dozer blade on the front and an entrencher on the rear end. The HME is a component of the Tactical Explosive System (TEXS). This functional area also includes the acquisition of equipment required by the combat engineering units to build and maintain roads.

O $6 million in FY 91 for the Watercraft program predominantly funds productivity improvements to the existing fleet. Currently in development is the Lighter, Amphibian, Heavy-Lift (LAMP-H); an air cushion lighter capable of transporting heavy tracked and wheeled vehicles, containers and heavy/oversized equipment to approximately 70 percent of the world's beaches where beach gradients and bottom conditions preclude the use of other lighterage.

O The Generator programs requires $46 million in FY 91 to continue acquisition of the new family of commercial generator sets and assemblies to support weapon and command, control and communication systems used in a variety of combat and support roles. This new generation of equipment will provide improved mobility and reliability and result in a single fuel (diesel) on the battlefield.

O Material Handling Equipment program will procure primarily rough terrain forklifts that are used to support the combat force. The request for this program is $43 million in FY 91. Forklifts are used at all echelons of the field army to include beach, water and air terminal operations, supply holding areas, and marshalling yards by supply, maintenance, engineer, transportation, field, and air defense artillery and ammunition units. These planned procurements fill existing shortages and replace overaged equipment.

O The final OPA 3 functional area I would like to address today is Other Support Equipment. The FY 91 amended request is $336 million. This area contains a varied range of equipment and programs necessary for daily operations such as: production base support programs to support establishment, modernization, expansion and replacement of equipment/facilities used in production; production testing;

depot level maintenance and the non-centrally managed equipment programs which fund commercially available, off-the-shelf equipment used to support installation's day-to-day operations.

As the cornerstone of readiness, tough, realistic training will continue to be the basis of deterrence. Continued constraints on available resources require training strategies and programs be developed to attain and sustain higher soldier/unit proficiency at lower costs. Institutional and unit training programs will expand the use of simulations and simulators to reduce costs and increase realism. Requirements for integrated, multi-echelon training will continue, with increased emphasis on joint and combined operations. To meet this requirement, the FY 91 amended request contains funds for the Combat Training Centers which are central to the Army's approved joint training strategy to prepare the total Army to win in any conflict. These centers provide the Army with a comprehensive mechanism that will provide training from the individual level to the corps commander and battle staff, in scenarios that will realistically replicate combat in low to high intensity scenarios.

Non-system training devices are also procured in this functional area. The thrust of this program is to procure state-of-the-art devices and simulators to enhance training and minimize the impact of training constraints. This training strategy insures that our soldiers are combat ready. A sample of the types of programs being procured in FY 90 and 91 are:

1. The Simulation Area Weapons Effect-Radio Frequency (SAWE-RF). This system simulates indirect fire and provides casualty damage assessment in combined arms exercises to include NBC. It is based on Global Positioning System (GPS) technology and will have vehicles and personnel equipped to receive signals indicating near miss and kills associated with the simulated use of artillery.

2. Tank Weapons Gunnery Simulation System (TWGSS)/Precision Gunnery System (PGS). This system will be used for precision gunnery training of platoon, company, and battalion level during force-on-force exercises. The system calculates the trajectory and impact points of rounds fired from the main gun and coaxial machine gun for TWGSS in the M1, M1A1 and M60A3 tanks. The PGS provides simulation for the 25mm cannon, coaxial machine gun and TOW weapon system.

3. The Precision Gunnery Training System (PGTS) will simulate the functions necessary to train and sustain gunnery skills for TOW and Dragon gunners. PGTS is a joint U.S. Marine Corps/U.S. Army program. This system has both an indoor and outdoor version. The indoor gunnery trainer uses video disk imagery to simulate targets. The outdoor field tactical training system uses laser technology to provide accurate hit/kill feedback to the gunner. This system will replace the TOW M70 Trainer and the Dragon Launch Effects Trainer which are both reaching the end of their useful service life.

Finally, our last Other Support Equipment item - Area Oriented Depot (AOD) program - contains a request for $30 million in FY 91. These funds were originally programed to upgrade the Central Distribution Center (CDC) at Red River Army Depot in Texas. However, due to the recent decision not to upgrade Red River these funds will be used to modernize and consolidate supply storage and distribution at other Army Depots.

In conclusion, the Army requests the support of Congress for these equipment programs. Within the budgetary constraints we are under, I believe the Army has achieved a reasonable program balance. Our primary purpose is to support the soldier. The programs presented today are essential in supporting a highly trained and ready to fight force as we transition to a smaller, more versatile, deployable and lethal Army.

### HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE

Mr. MURTHA. Let me ask about the HMMWV because when Mr. Livingston and I were in Korea and earlier when I was in Europe, I remember—the handle was off the right door on a lot of them. Everyplace I asked, they said, "Well, we just haven't gotten in it." It is fairly simple to repair. In a couple of reserve units, I notice the same thing.

General RIGBY. There was a problem with the handle. I believe we have that corrected now and it is in stock.

Mr. MURTHA. The other thing is, have you ever ridden on the right side of the HMMWV in the passenger side?

General RIGBY. Yes, sir.

Mr. MURTHA. That is sitting right on top of the battery and there are no springs under the seat. Maybe the young people can take that, but it is a hard seat. I wondered if there is——

General RIGBY. I brought a new seat with me today.

Mr. MURTHA. Okay.

General RIGBY. We'd appreciate you assisting us in the evaluation. This is the old seat that you sat on.

Mr. MURTHA. I remember it well.

General RIGBY. This seat is about a quarter inch thicker, has a heavier foam, and is in the new vehicles now coming off the production line.

We have also put it in stock.

Mr. MURTHA. I like this seat. I appreciate that kind of interest, too. I don't know how many people ride on the right side, but I know they spend a lot of hours in it and I appreciate that kind of attention to detail. I can see people coming in to see me years later, after they are out of the service, and they have a problem.

I will test the seat the rest of the day and then we will send it back to you.

### ITALIAN PATRIOT

Let me ask you about the Italian Patriot program. Are the Italians going to fund their part of the program?

General CERCY. Yes, sir. The Defense Council met last week and approved it. The Cabinet Council now has to meet and approve it, but we expect that to take place, and we will receive a letter to the Secretary of Defense indicating how they will fund that procurement.

Mr. MURTHA. I can see there might be some threat from Libya, but that is a very expensive program.

In your professional estimation, is this a program that really deserves that kind of funding or is this something that is nice to have? With our constrained funding resources today, is this something that is a high priority with the United States Army?

General CERCY. Yes, sir; I think it is. Even more so now with the increasing threat of the antitactical ballistic missiles, sir.

Mr. MURTHA. What about the Third World threat now?

General CERCY. Yes, sir. ———. The Patriot is our only existing capability today that we have against an incoming tactical ballistic missile, so from that standpoint, it is very important. From the air-breathing threat as well, it is the most capable system we have in the free world today.

Mr. **Murtha**. Looking at it with the changed world situation, I am asking how important it is in your list of priorities because I see things changing substantially.

Last year we put the budget request in for it, but I want to get on the record your professional opinion about the Italian Patriot program.

General **Cercy**. I think it is important to our defense there.

Mr. **Murtha**. In the list of priorities, would this be a high priority on the list for the Army?

General **Cercy**. Yes, sir.

### TOW 2 MISSILES

Mr. **Murtha**. Let me ask you about the TOW 2. The 1991 budget includes $219.5 million to buy 13,284 TOW 2 missiles. The fiscal year 1990/1991 biennial budget submitted in January 1989 included only $168.7 million to purchase 13,284 missiles.

What accounts for the increase of $50.8 million for the same number of missiles?

General **Cercy**. Sir, the cost increase is mainly due to a change in the threat. The actual threat target, as I mentioned earlier, the armor/anti-armor competition keeps going back and forth with us and the Soviets. The target became harder.

We had to come up with a warhead liner which is a more expensive metal than what we had before. We had problems in cost estimates ourselves so the combination is what makes the difference.

Mr. **Murtha**. How much of the change was due to cost estimate difference and how much in change in the threat?

General **Cercy**. Sir, I think it was more than 50 percent cost estimate problem.

Mr. **Murtha**. So the threat really only addressed half the cost, $25 million was from misestimate of your procurement people?

General **Cercy**. Yes, sir. That is correct.

Mr. **Murtha**. The Army's current strategy calls for a directed buy of 3,000 missiles to the second source in 1991.

Is that correct?

General **Cercy**. Yes, sir.

Mr. **Murtha**. If 3,000 missiles go to the second source in 1991, can the Army buy 13,284 missiles with the budgeted amount?

General **Cercy**. No, sir.

We predict we will buy 11,300 missiles. The second source would get 3,000, and the Hughes contractor 8,300.

Mr. **Murtha**. So you are saying for the same amount of money, you are going to buy substantially less, because there is a second source?

General **Cercy**. No, sir.

The cost growth that I spoke about before is the problem—the warhead and so forth.

Mr. **Murtha**. Maybe I misunderstood the figures.

Do these add up to the amount of money you have appropriated or that you have available to you?

General **Cercy**. Yes, sir. For the 11,300, total missiles.

Mr. **Murtha**. That is what I don't understand.

General **Cercy**. We are buying almost 2,000 fewer missiles than what we had budgeted for, and it is due to the cost growth in the TOW 2B.

Mr. **Murtha**. You asked for $168.7 million; is that right?

General **Cercy**. Yes, sir.

Mr. **Murtha**. How much are you asking for these 13,000 missiles?

General **Cercy**. $219.5 million, sir.

Mr. **Murtha**. And you will be able to include in the second source—you will be able to build 13,284 missiles with $219.5 million; is that right?

General **Cercy**. No, we will only be able to procure 11,300 missiles, sir.

Mr. **Murtha**. Is that where the $50 million comes in?

General **Cercy**. Yes, sir, but the $50 million doesn't have anything to do with the second source. It is the cost growth in the TOW 2B itself as far as the change in the warhead and so forth.

Mr. **Murtha**. So the cost growth is $50 million and you are buying 2,000 less missiles.

General **Cercy**. Yes, sir.

Mr. **Murtha**. What changed between the time you put the budget together and right now?

General **Cercy**. Sir, the corrections to our estimates, we knew that the threat was changing. We didn't know what it was going to cost to procure this new warhead and we didn't make a good estimate.

Mr. **Murtha**. Can you use less TOWs? Can you get by with less than the ones that you budgeted for here?

We are looking for places where we can find money, and I am not talking about 2,000 less. I am talking about even less than that. Can you do with less?

General **Cercy**. Sir, the requirement is there for what we have asked for and the requirement is there for a continued procurement.

Mr. **Murtha**. Obviously you have revised your estimate in just two months, so it is possible that you could again revise your estimate.

General **Cercy**. Yes, sir.

Mr. **Murtha**. Information provided to the Committee last year indicated that total Army and Marine Corps TOW 2 purchases in the future would exceed 20,000 annually. Information received this year indicates total buys will probably be 25 percent less, or in the neighborhood of 15,000. Since the prime contractor has a minimum economic production rate of 21,600 missiles and has produced as many as 40,000 missiles annually, does it make good economic sense at this production level to have two sources?

General **Cercy**. It really does not.

Mr. **Murtha**. How much would it cost to develop the second source fully so it can make TOW 2B missiles? You may answer that for the record.

[The information follows:]

Approximately $7.9 million is included in the fiscal year 1991 budget request for fully implementing dual sourcing for TOW 2B missiles. These funds include implementation for increasing McDonnell Douglas production rate to 1,000 missiles per month; for facilitizing TOW 2B sensor check out stations at McDonnell Douglas, and for implementing a second source for the TOW 2B warhead producer.

Mr. MURTHA. At projected procurement rates of approximately 15,000, give us an idea of what we are talking about here.

[The information follows:]

At an annual DOD procurement of 15,000 TOW 2B missiles per year the Army dual source strategy would maintain two sources through fiscal year 1992 so that the second source would be a fully qualified TOW 2B producer. After the fiscal year 1992 buy the Army strategy would call for a competitive winner take all multi-year buy out. When compared to a Hughes sole source contract, this strategy would recoup our second source development cost in fiscal year 1993.

Mr. MURTHA. We are running into more and more second source problems. We are finding that second sourcing is not necessarily the most efficient way to buy, since we are reducing volume in a lot of these systems.

General CERCY. It is an $8 million cost to facilitate for TOW 2B.

Mr. MURTHA. To facilitate the second source?

General CERCY. And it will also cost the prime the same amount of money to facilitate the TOW 2B.

Mr. MURTHA. That is what we wanted to know.

Mr. McDade?

### HELLFIRE MISSILE

Mr. McDADE. Thank you, Mr. Chairman.

General, after several years of maintaining two producers, the Army awarded the entire 1990 HELLFIRE buy to one contractor. Explain the reasons for the change in acquisition strategy.

General CERCY. The minimum economic rate for two producers is 4,200 missiles. The fiscal year 1991 budget of $123.3 million allowed us to produce 3,002 missiles.

Mr. McDADE. What savings, if any, do you expect as a result of the decision?

General CERCY. Actually, we have contracted now. We got a little bit better price than we had predicted. In 1991, we have 13.8 percent savings and in 1992, 17.2 percent.

Mr. McDADE. Are those priced options in the outyears that the Army requested?

General CERCY. Yes, sir; 1991, 1992, and 1993.

Mr. McDADE. Repeat these savings for 1991, 1992, and 1993.

General CERCY. I have only 1991 and 1992 at this time. It is 13.8 percent in 1991 and 17.2 percent in 1992.

Mr. McDADE. Thank you.

[CLERK'S NOTE.—Classified discussion removed.]

### HAWK MISSILE

Mr. McDADE. Let's talk about the Hawk missile.

The 1991 Administration budget proposes to terminate the Hawk missile program and reprogram the funds appropriated in fiscal year 1990 to pay military personnel costs.

Would it be possible to use the $13.4 million reserved for termination costs, the $50-plus million already obligated for long-lead-time items and economic order quantity buys, and certain foreign military sales funds to close down the Hawk line in an orderly way and provide more Hawk missiles for the Army?

General **Cercy**. Yes, sir.

In fact, we have requested special defense acquisition funds to attempt to do that with the potential foreign military sales available.

Mr. **McDade**. You haven't received any response yet?

General **Cercy**. No, sir. It has gone through, initiated by AMC and gone through the Army staff to DSAA and that is where it is now.

Mr. **McDade**. Can you do this with a contract modification or do you have to have additional authority?

General **Cercy**. It would not involve a contract modification, sir.

Mr. **McDade**. Do you need additional authority to do it?

General **Cercy**. I don't believe so, sir.

Mr. **McDade**. You think you have the authority to do it?

General **Cercy**. Yes, sir.

## ATACMS PROGRAM

Mr. **McDade**. For the Army Tactical Missile System, the budget includes $168.7 million for the procurement of 318 Army Tactical Missile System missiles, and an additional $18.5 million for advance procurement. The Committee was recently informed that this program had breached thresholds for schedule and total program acquisition cost. What has happened to the ATACMS program?

General **Cercy**. Sir, during the developmental testing, the technical testing, we had some problems with the control actuator assembly. As a matter of fact, we had to recontract for a different control actuator. That slipped the whole program and we were supposed to complete operational testing in December of 1989, and in fact, we did not initiate operational testing until last month, in March of 1990. So the whole program slipped. That slip caused a breach of the thresholds as far as the schedule for the full rate production decision was concerned.

Meanwhile, $55 million was withdrawn from the budget with that slip of the operational test because we couldn't go ahead with the procurement that was contingent upon that.

So the balance was insufficient to procure the not-to-exceed quantities of 276 missiles and we ended up with 104 missiles in the current buy.

Mr. **McDade**. A lot of cost growth, you are down from 152 to 104 in 1990.

General **Cercy**. Yes, sir; again a similar problem, bad estimating as far as what it would actually cost lead to the total problem We thought we could buy 152 missiles and ended up with only 104.

Mr. **McDade**. We were told in the fiscal year 1988–89 budget cycle that the program acquisition cost was to be $1,350,200,000. What is your current estimate of the total program acquisition cost?

General **Cercy**. The total procurement cost is $1.6 billion, sir, for 2,834 missiles. The total program acquisition cost for this quanity is $2,181.0 million.

I would like to clarify one thing. On the initial set of buys, we had not-to-exceed options that added up to a total of a thousand missiles.

We had the breach with a rather significant contract unit cost growth for the initial options but the total 1,000 missiles actually were only 5 percent above original contract price not-to-exceed options.

Mr. **McDade**. Our figures would indicate that the total procurement quantity increased from a thousand missiles to 2,834 missiles. Is that accurate?

General **Cercy**. Yes, sir; that is, in fact, correct. A study was done to look at total worldwide requirements and that is the requirement number that came from that study.

Mr. **McDade**. Is it a current study? Are you still standing by that figure?

General **Cercy**. Yes, sir.

Mr. **McDade**. How old is the study?

General **Cercy**. Last year.

Mr. **McDade**. The original full-scale development contract for ATACMS had fixed-price options for two alternate procurement profiles for the first 1,000 missiles. The current Army procurement profile fits neither of these alternatives. What additional procurement cost results from having to renegotiate the contract for the current profile?

General **Cercy**. Sir, I think that is the scenario I just led you through on those thousand missiles and the fact that we end up with a contract cost of about five percent above were we were originally.

Mr. **McDade**. Is that $300 million—what is the cost consequence of that? We are looking for a cost figure.

General **Cercy**. It was renegotiated from $409.1 million to $430 million, an increase of $20.9 million.

That adds the second option for the two years of the LRIP. We had the—really, that is it.

Mr. **McDade**. Answer questions 6 and 7 for the record, please.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

*Question*. What is the status of the fiscal year 1989 and 1990 procurement contracts? Provide contract details for the record.

Answer. The fiscal year 1989 LRIP contract was awarded February 1, 1989, and the LRIP-2 contract was awarded February 5, 1989. The contractor was 2 months late with the initial LRIP delivery but is forecasting full recovery in July 1990. The contract details follow:

LRIP-1 Contract (Fiscal year 1989): Qty: 66 M/LPAs; U/P: $612,579.68; T/P: $40,430,258.76; Del Sch: Jan 90-Dec 90; Contract Type: FFP.

LRIP-2 Contract (Fiscal year 1990): Qty: 104 M/LPAs; U/P: $602,962.40; NTE; T/P: $62,708,090.00; NTE; Del Sch: Jan 91-Sep 91; Contract Type: FFP.

*Question*. Provide for the record the current procurement profile for the first 1,000 missiles, showing associated unit and total costs for the missile and for the total program.

Answer. The procurement details follow:

[Dollar amounts in millions]

| | LRIP-1 (FY1989) | LRIP-2 (FY1990) | FSP-1 (FY1991) | FSP-2 (FY1992) | FSP-3 (FY1993) | Total |
|---|---|---|---|---|---|---|
| Missiles | 66 | 104 | 318 | 411 | 101 | 1,000 |
| Unit Fly-Away Cost [1] | $0.916 | $0.807 | $0.554 | $0.554 | $0.517 | $0.600 |
| Total Fly-Away Cost [1] | $60.456 | $83.900 | $176.278 | $227.636 | [2] $52.189 | $600.459 |
| Current Proc Profile [2] | $70.700 | $93.545 | $187.178 | $228.236 | [2] $252.391 | $832.050 |

[1] Fly-Away costs include the missile, Government furnished equipment, engineering services, engineering change orders, and test and evaluation documentation.

[2] Fiscal year 1993 current procurement profile is for a total buy of 456 missiles. The total fly-away cost addresses the first 101 of these missiles which complete the missile buy under the Not To Exceed (NTE) contract options. The remaining 355 missiles will be purchased under a new contract.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. McDADE. What is the status of the out-year procurement options in the current profile and how much are your current estimates likely to change?

General CERCY. We have renegotiated not-to-exceed options for those first thousand missiles and they are firm unless the budget is reduced below the amount necessary for the exercise.

Mr. McDADE. Development testing for ATACMS was completed in December. What were the results of those tests? Specifically, what technical or other requirements were not conclusively demonstrated.

General CERCY. The development test was completed successfully. There are not technical problems left as a result.

Mr. McDADE. That is good to hear, General.

What are the milestones for operational testing?

General CERCY. We initiated in March—5 March, we have had three flight tests to date. These are still being analyzed, but all flew successfully. We are due to complete the operational tests in June of this year.

Mr. McDADE. What are the other program milestones for ATACMS?

General CERCY. Equipped in USAREUR in September 1990 and milestone III full-rate production decision in October.

### PALLETIZED LOADING SYSTEM

Mr. McDADE. Let's go on to the Palletized Loading System. The budget includes $150.6 million for the second procurement of the Palletized Loading System. What is the status of this program?

General RIGBY. That program is on track. We are planning an ASARC for 6 April with a contract award date of 4 June.

Mr. McDADE. What has the Army done to comply with direction in last year's report to expedite the procurement of flatracks which are not only optimized for intratheater but are also compatible with U.S. airlift and sealift requirements?

In last year's hearings we were advised that after buying 15,000 flatracks, the remaining flatracks would be "competitively procured using the technical data package which is delivered under the system production contract." That appears to be inconsistent with the instruction of this Committee. Will you go through that with us?

General RIGBY. Since that time, TACOM, TRADOC, and MTMC have been actively looking at existing flatracks and flatrack designs that could perhaps be incorporated into an improved flatrack.

We have found designs not actually compatible with the PLS at this time, but designs that could be incorporated into a flatrack that would allow us to stack seven high in the cargo hold of a container ship.

We have had more problem with air transportability of a flatrack without a pallet. Rails can be added to the flatrack, but at the present time, that makes it incompatible with the interoperability agreement that we have with the Germans and the British. However, we continue to look at that.

The rest of this fiscal year with a joint flatrack working group we are going to finalize those requirements and in 1990 and 1991 we are going to design an improved flatrack and begin constructing prototypes simultaneously with the low-rate production on the standard flatrack that is in the contract now.

In 1991 and 1992 we will test that new design and in 1992 we are planning to cut it into production. Now, that would give us about—if we cut-it-in in early 1992, only about 2,600 of the flatracks designed only for ammunition transportation in the corps area. We would transition to a new flatrack that would improve intertheater transportability.

Mr. MCDADE. There is a significant decline in the budget request for fiscal year 1991 vis-a-vis what you were predicting last year. What is the reason for that? You are down from $236.5 million to about $150.6 million.

General RIGBY. When we did a detailed review of the program just before we submittted the budget, we determined that the fiscal year 1992 award, since it was the third year of the contract, had too much administrative lead time in it.

We backed that contract up four months, to award it sooner. That caused an overfunding of production in 1991 so we took that production out of 1991 and put it into the outyears. That accounts for the reduction in 1991.

Mr. MCDADE. Last year, you told the Committee that you expected to make a source selection and contract award in April. What is your current estimate and why has it changed?

General RIGBY. We still intend to make a contract award in June. The delay was caused by late delivery of the prototype vehicles from three contractors, so we have made adjustments in our testing schedule so that we will have a complete test prior to contract award.

Mr. MCDADE. Do you think that date is firm now?

General RIGBY. I am reasonably confident that we can make that date.

Mr. MCDADE. Last year we were told that the total procurement quantity for PLS was 4,333 trucks; 1,915 trailers, and 103,000 flatracks, at a total cost of $1.957 billion. Any changes from that plan?

General RIGBY. Our current budget request does support those quantities. However, the Army is in the process of looking at force structure downsizing necessary to go to a smaller, more capable force. All of our modernization programs such as this are under study now. There could be a change in some of those quantities.

Mr. McDade. Do you think your cost estimates are going to stay firm?

General Rigby. Yes, sir.

Mr. McDade. Answer questions 7, 8 and 9 for the record.

Thank you, Mr. Chairman.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

*Question.* For the record, provide the monthly delivery schedule for the first two years of procurement.

Answer. The delivery schedule for the first two years of procurement in support of the fiscal year 1991 budget request is:

| | |
|---|---|
| FY 1990 Program: | |
| 1991: | |
| May | 25 |
| June | 6 |
| July | 6 |
| August | 6 |
| September | 6 |
| October | 6 |
| November | 17 |
| December | 30 |
| FY 1991 Program: | |
| 1992: | |
| January | 52 |
| February | 75 |
| March | 80 |
| April | 80 |
| May | 80 |
| June | 80 |
| July | 29 |

*Question.* You are now close to contract award. How confident are you that your current cost estimates are realistic?

Answer. Although bids and their relation to the cost estimates are competition sensitive, the estimates are close to what we have received. As for the program as a whole, we foresee no problems with funding.

*Question.* What are the additional milestones for this program, to include initial production testing and full production decision?

Answer. Additional milestones are as follows: 4 June 90—Contract Award. June to December 90—Production Fabrication. June 90 to December 91—Logistic Spt Preparation. January 91 to March 91—Shakedown Testing. March 91—First Production Delivery. May 91—November 91—IPT/OT. March 92—AMC 700-34 Release. April 92—FUE. March 92—Full Production Decision.

*Question.* What accounts for the difference in procurement quantities for tractors, trailers, and flatracks?

Answer. For each program year, the trailers equate to approximately 44% of the trucks being procured in that year. Also, three flatracks for each truck and three flatracks for each trailer are programmed. These trucks, trailers, and flatracks are required for the PLS system. In addition, we also have storage flatracks which are included in some of the program years.

[Clerk's note.—End of questions submitted for the record.]

Mr. Murtha. Mr. Livingston.

## ADATS MISSILE

Mr. Livingston. In recent live fire tests conducted by Army troops, the ADATS missile had six hits in seven attempts. However, reliability seems to be a major problem. According to an Army Operational Test and Evaluation Report, failures caused the fire units to shut down on average every 13 hours, is that correct?

General Cercy. Not exactly. We have problems with reliability and maintainability. The actual figures show that the meantime between hardware mission failures is 16 hours for the fire unit and 25 hours for the contractor-furnished equipment, the weapon system part as a result of those tests. So the 13 hours is close.

Mr. Livingston. The requirement is—what did you say it was?

General Cercy. I didn't say.

Mr. Livingston. Seventy-nine by the end of 1992, so it is a little short.

General Cercy. It is. We had expected to be up to 40 hours or so at this time.

Mr. Livingston. What seems to be the major cause of the failures and what are the Army and the contractor doing to improve the situation?

General Cercy. There are a number of things that we have done. First, when you look at the weapon system overall, if you include the communications equipment and the tracked vehicle itself, these modified Bradley chassis also have quite a few miles on them; we had problems there. We also had some problems with communications gear. The contractor's equipment is high-tech electronics, and we are beating it around in the desert. As we find problems, we have corrected them.

At this point, 90 percent of the problems corrected have not failed again, but it has been a problem to make sure we got them all out of the system early on.

Mr. Livingston. Have developments in Central and Eastern Europe last year changed the Army assessment and subsequent need for ADATS?

General Cercy. No sir. ADATS is developed to provide a modern air defense capability with our divisional forces forward, wherever they might fight, and we suspect the hovering helicopter to be a threat to them wherever they go, and the ADATS can kill that hovering helicopter. We have nothing else that can do that.

Mr. Livingston. Where does ADATS rank in priority of the Army?

General Cercy. When we went through the recent POM drills, ADATS ranked seven in priority in the Army, which is very high.

Mr. Livingston. What is the current status of the fenced funds from 1989 and 1990?

General Cercy. Sir, we have a commitment to complete testing and show that the system does meet its operation availability requirements. We have to certify that, have the Secretary of Defense certify it, the GAO and DOD tester. That would be done this summer. We are going into the maneuver phase of that initial operation test and evaluation shortly. We hope do be able to go on contract by the end of July.

Mr. Livingston. How do you feel the progress is going?

General CERCY. To be honest, not as well as I would like to see at this time. It is going to be tight.

Mr. LIVINGSTON. Do you feel that the contractor is making the necesssary improvements to upgrade the weapon?

General CERCY. I think he is trying. We are in a learning process now.

Mr. LIVINGSTON. Are we going to take a critical look at this after the summer and go other ways if it doesn't pan out?

General CERCY. Its operational performance is fantastic. It is a reliability problem that we are concerned about. That is something we can fix. It is just a matter of how long it takes us to fix it.

Mr. LIVINGSTON. I have other questions for the record on similar projects.

Thank you.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

### MULTI-PURPOSE INDIVIDUAL MUNITION (MPIM)

*Question.* Is the Army considering or planning to request funding for MPIM (Multi-Purpose Individual Munition) in the FY 1992 POM?

Answer. Yes, the Army has proposed full developmental funding for the MPIM in the FY 1992 POM.

*Question.* Is the Army considering or planning to request funding to complete Full Scale Development for MPIM in the FY 1992 POM?

Answer. Yes. The Army has requested funds for the full support of the MPIM 36-month FSD in the FY 1992 POM.

*Question.* Has Proof of Principle (POP) testing shown that the Army's operational requirements for a MPIM type system can be met?

Answer. The POP testing is not yet complete. Therefore it is too early to determine if the operational requirements will be met. Two of three contractors have finished test firings and the third will finish in early May 1990. User tests will be completed in June 1990.

*Question.* How does MPIM compare with currently fielded weapons in terms of potential capability and effectiveness?

Answer. The Required Operational Capability for the MPIM compares very favorably with currently fielded weapons. However, the actual performance capabilities of the MPIM have not yet been determined. Test results to date look favorable, but AMSAA/BRL analysis will not be available until this summer (1990).

*Question.* Are there any other weapon systems currently fielded or in FSD, U.S. or foreign, that can meet the MPIM type system requirement?

Answer. No. There are no U.S. or foreign systems, in production or in FSD, that meet the MPIM requirements. All candidates fall short on one or more of the following requirements: lethality, accuracy, weight, size, crew requirement, enclosure fire or noise level.

*Question.* If the Army were to proceed, can at least one or more of the current POP contractors meet the MPIM FSD and production objectives?

Answer. POP testing is not complete. At this time, however, it appears that one or more of the POP contractors will be able to sufficiently meet the MPIM FSD requirements to warrant award of an FSD contract.

*Question.* What other countries have expressed an interest in the MPIM weapon system?

Answer. Invitations were extended during Proof of Principal and no other country expressed an interest in the MPIM weapon system.

*Question.* Given the low intensity conflict experiences in Panama, has the need for a Multipurpose Individual Munition (MPIM) weapon system increased in priority?

Answer. Yes, the conflict in Panama validated the need for a weapon that could defeat light armor vehicles and provide a bunker busting capability. The Army has requested reprogramming authority to complete the development and testing of MPIM.

*Question.* Do the Special Operation Forces have a need for a MPIM type system?

Answer. Yes, MPIM will provide Ranger Battalions with a light weight munition which has a bunker busting capability and is effective against light skinned armor.

*Question.* Has the Army or DOD considered funding this requirement through Special Operations Forces accounts?

Answer. Neither the Army nor DOD has considered funding this requirement through Special Operations Forces procurement appropriations. The Army has type classified and approved for service use a Multi Purpose Individual Munition. Procurement currently supports the annual peacetime training requirement and builds a war reserve stockpile. The Special Operations Command can receive these munitions through normal requisitioning procedures as part of Army support to Special Operations Forces.

*Question.* Has the Army worked with other services (such as the Marines) in the development effort regarding Multipurpose Individual Munition (MPIM)? If not, why not?

Answer. Yes, we have coordinated the MPIM program with the Marines and they have expressed interest in the final results of our Proof of Principle (June 90). They have not programmed money at this time for MPIM because they have bought the Shoulder Launched Multipurpose Assault Weapon (SMAW) as their bunker busting weapons system. The SMAW does not meet Army requirements. It is too heavy (30 lbs) and requires a dedicated gunner and three-man assault team. MPIM will provide the dismounted soldier a lightweight round of munitions (12 lbs or less) which has a bunker busting and antiarmor capability. MPIM will be issued as a round of ammunition, and will be disposable after use. It will have a minimum launch signature, and the capability for launch within an enclosure.

## FORWARD AREA AIR DEFENSE SYSTEM (FAADS)

*Question.* I understand that the Army has cancelled production for one part of the FAADS system (Non-Line-of-Sight), and another part (Command, Control, and Intelligence) has been significantly altered with the cancellation of the Ground Based Sensor. Is this accurate? Please explain.

Answer. No, the Army did not cancel production of the Non-Line-of-Sight missile system or the Ground Based Sensor program. In the fiscal year 1991 budget the Army deferred the start of Non-Line-of-Sight production thus eliminating concurrency between development and production. In July 1989 the Army cancelled the solicitation for the Ground Based Sensor as the contractor could not meet performance requirements. Initiation of a new competitive solicitation for a Ground Based Sensor will begin in June 1990.

*Question.* According to some reports there are delays and cost increases with the Line-of-Sight, Forward Heavy System for which ADATS was chosen. How far behind schedule and how much over cost is this system?

Answer. The program has slipped 33 months from its baseline due to budget reductions and restrictive congressional language. To meet this restrictive congressional language the program had to be restructured to accommodate additional testing. Currently, the program is on schedule and an August production contract award is expected. Since the system cost was baselined after the source selection decision, there has been little increase in cost for the program. Revised inflation indices/assumptions issued in December 1989 are what has made the program's cost appear to increase.

*Question.* Has the Army reduced the number of units planned from 562 to 464? Explain.

Answer. No. The original number of ADATS fire units programmed to be purchased was established at 562. This was based on Army heavy maneuver force requirements prior to Conventional Armed Forces Europe (CFE) negotiations, and other force reduction initiatives currently under consideration. The total ADATS requirement will be reduced from the 562 amount, as appropriate, to match the finalized post CFE/force reduction heavy maneuver force structure.

*Question.* What would be the unit cost of ADATS at a reduced quantity buy of 464 compared to 562?

Answer. The total ADATS buy will be reduced, as appropriate, to match the finalized post Conventional Armed Forces Europe (CFE) heavy maneuver force structure. However, for a 15 percent reduction in quantity bought, fire unit costs would increase approximately 8 to 10 percent. Once the final force structure is finalized the exact ADATS fire unit costs will be redone to reflect this new force structure.

*Question.* Has the Army done a cost and effectiveness analysis on ADATS using the current cost/quantity and reliability data? If so, please summarize the results.

Answer. No, the Army currently has not done a cost and effectiveness analysis using current cost/quantity and reliability data.

*Question.* Does the Army plan to continue the development of other systems with long term growth potential? Explain.

Answer. Yes. The Army's current air defense priority is to modernize our forward area air defense weapon systems. This will be accomplished by fielding the Line of Sight Forward Heavy, Non-Line of Sight, Avenger and the associated Command and Control system. The current air defense systems for the forward area were all fielded in the mid 1960's and are nearing the end of their useful lives. As an example the Army is withdrawing the Forward Area Alerting Radar from the field due to its high support costs and is also retiring the vehicle it is mounted on.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

Mr. MURTHA. Mr. Miller.

### FIBER OPTIC GUIDED MISSILE

Mr. MILLER. Thank you, Mr. Chairman.

Gentlemen, the Army, as I understand it, decided to defer procurement of the FOG–M. When do you plan to begin procurement of this missile, and will this decision have any impact on the price of the missile?

General CERCY. Sir, right now we have deferred procurement until the 1994 time frame. This could, of course, have an impact on the price. Many things are changing right now, ~~as you kn~~ow. We are going ahead with the ADATS system I just talked about. We will continue with the development of the FOG–M and go to procurement in 1994 if, in fact, funds are available at that time.

Mr. MILLER. When you say "that time," are you talking about the fiscal year 1992——

General CERCY. 1994, sir.

Mr. MILLER. 1994. And what could be the price or the amount of dollars that you would be requesting in 1994? I know there is a change between now and then, but it would give us some idea of what would be spent.

General CERCY. Sir, I would have to provide that for the record.

[The information follows:]

Specific funding profiles for the FOG–M and many other programs are the subject of ongoing deliberations within the Department in development of the Six Year Defense Program.

### PROTECTIVE MASKS

Mr. MILLER. In my congressional district we have Scott Aviation and the Army and Scott are engaged in a dispute over the termination of a contract for the production of protective masks.

Last December, I had both groups in my office hoping to resolve this dispute because there are about 125, 150 people in my district that are not working at the present time. At that time I was urging the Army to move ahead to come to some agreement with Scott so they could continue with the contract and the people could go back to work.

I would hope that you could take a look at this and see at least what the status may be so that we could move ahead to have those people working. Do you have any information on that particular subject at the present time?

General RIGBY. As you probably know the contract was terminated in January at the Herbron Plant. Scott Aviation is——

Mr. MILLER. I had not had that information that the contract was terminated.

General RIGBY. Sir, that was not an arbitrary decision. We have tried to assist the contractor but after three years he was unable to produce a mask that passed first article test. We needed to get on with the program.

Mr. MILLER. He was unable to produce a mask, you say?

General RIGBY. That passed first article test, sir.

Mr. MILLER. I don't know. The people that are making it have made masks before, and they seem to just hit a dead end.

I am wondering, too, whether there are other contracts are causing this same situation where people will have a contract and put on line all the personnel necessary, and then have the contract stopped. It doesn't quite make sense that we should have so many people out of work when someone else is going to have to manufacture these masks and the people at Scott Aviation have good engineers to be able to produce what the Army wanted.

General RIGBY. Sir, we felt that after three years of trying to produce a mask that passed first article test and due to the criticality of the protective mask, we needed to get on with the program. We have two other contractors who seem to be progressing satisfactorily in producing the M-40 and M-42 masks. They will be coming up for first article test very shortly.

Mr. MILLER. At one time the Army said that Scott Aviation was far ahead of any other contractor in being able to produce, and they had produced some, but by the same token, they were not accepted. They had maybe 500 or more ready to go, but they didn't show that there was a fallacy in the mask, and I think we should find out a little more about it. I would like to have someone from the Army come to my office to discuss this.

General RIGBY. Yes, sir.

Mr. MILLER. Is there any chance of picking up the contract again?

General RIGBY. No, sir, there is not.

Mr. MILLER. I still would like to know about it.

Thank you.

### SLEP PROGRAM

Mr. MURTHA. Let me ask about the SLEP program. One of the elements of the Army's tactical wheeled vehicle modernization plan is a service life extension program for 2.5-ton and 5-ton trucks. Last year we said that this program should cost no more than one third of the cost of new trucks. Where are we with that? Are you going to be able to achieve it?

General RIGBY. No, sir, probably more like a half. Let me go into the rationale for that cost. As we put together the Tactical Wheeled Vehicle modernization plan last summer, we looked at the rate of production of the FMTV and determined that the pace of that production simply wouldn't let us modernize the medium fleet fast enough.

We determined that we needed a SLEP program that gave us 10 to 12 years of life on the 2.5 tons and 5 tons in order to hold O&S cost growth at present levels.

Mr. MURTHA. Say that again. How much life?

General RIGBY. Ten to 12 years of life on the 2.5-ton and 5-ton to hold down our O&S costs. To re-engine the 2.5-ton or 5-ton, that is a new engine and transmission is an integral part of the SLEP program. This is one third the cost of a new vehicle.

Mr. MURTHA. Re-engining?

General RIGBY. Re-engining and new transmsission. That is a critical part of the SLEP program.

Mr. MURTHA. How much does that increase the life of the truck?

General RIGBY. Sir, it does not reach the 10 to 12-year time frame that we needed.

Mr. MURTHA. What does it reach?

General RIGBY. I will have to provide that for the record.

[The information follows:]

It is estimated that re-engining and adding a new transmission extends the life of a 2½ ton or 5 ton truck three to five years.

Mr. MURTHA. That is a critical question. If you only get six years it is questionable whether you should go forward with the program.

General RIGBY. I believe it is in the mid five- to six-year range.

Mr. MURTHA. I misunderstood. I thought you said you would only extend the life of the vehicle five to six years.

General RIGBY. That is only if I pay one third of the cost of a new vehicle.

Mr. MURTHA. You are saying if you spend up to 50 percent, then you will extend the life to 10 to 12 years?

General RIGBY. Yes, sir, and hold the operating and support costs flat.

Mr. MURTHA. Okay. Will this program be managed by the program executive officer for tactical wheeled vehicles at the Army's Tank and Automotive Command?

General RIGBY. Sir, at the present time the management of that program is assigned to General Tuttle, the Commanding General of the Army Materiel Command, who has assigned it to General Pigaty, the Commander of the Army Tank Automotive Command, TACOM. It is managed within the AMC system and not by the PEO.

Mr. MURTHA. How much does this program amount to?

General RIGBY. If we go the entire ten years of the program, the cost will be around a billion dollars.

Mr. MURTHA. Well, with a program of that size, is this the right command to supervise it?

General RIGBY. Sir, this is the command that has all the experience in remanufacture and rebuild. They have had experience with the M–113 rise program. They did the rebuild on M–60A1s.

Mr. MURTHA. What does the program executive officer for tactical wheeled vehicles at the Army Tank and Automotive Command do?

General RIGBY. He handles all new modernization programs such as the PLS, FMTV, HMMWV, the SUSV, all of the new programs for trucks and trailers.

Mr. MURTHA. The Army has to make a decision on who does this, but I don't understand why your truck program executive officer doesn't manage this. I am trying to second-guess your decision, but I just don't understand it.

General RIGBY. Sir, a program of this nature is within the normal mission of the Army Materiel Command. We routinely do depot rebuilds. We have been involved in other rebuilds such as the M-113 and the M-60A1 to the A3.

Mr. MURTHA. So what does this program executive officer for tactical wheeled vehicles do?

General RIGBY. He handles all the new vehicle programs.

Mr. MURTHA. So he doesn't do SLEP programs; he just handles new vehicle programs?

General RIGBY. At the present time he handles new vehicle programs, that is correct, sir.

Mr. MURTHA. The National Guard has been promoting the idea of a SLEP program for its trucks. Is there any reason why there should be two SLEP programs?

General RIGBY. Absolutely not, sir. If we get the SLEP program as I described into operation, it will be a total Army program. It will support the priority of first to fight that we have for distribution of equipment. We will have additional options on it. If the Guard and Reserve want to spend dedicated procurement for SLEP, they can come to this program. But there will be a single program for SLEP for the total Army.

Mr. MURTHA. Mr. Young.

### HELLFIRE MISSILE

Mr. YOUNG. Thank you very much, Mr. Chairman.

General, earlier there were some questions asked about the HELLFIRE missile, some technical questions. I would like to go back to that issue again.

We have had reports that HELLFIRE missiles were used in the Panama operation against a variety of targets. Are those reports accurate?

General CERCY. Yes, sir.

Mr. YOUNG. Tell us something about the effectiveness of the weapon in that operation.

General CERCY. Sir, it flew right into the window it was aimed at, so it is extremely accurate, it performed very well.

Mr. YOUNG. The window scenario which we had been told about, was that the only example of how it was used?

General CERCY. No, sir, there were others. I can't explain in detail here.

Mr. YOUNG. Provide it for the record.

[The information follows:]

There were seven Hellfire missiles used during the recent Operation "Just Cause" in the Republic of Panama. All seven shots were laser designated and fired from APACHES. The target definition, range of engagement and results are included in the following matrix.

| Target | Location | Range | Results |
|---|---|---|---|
| (1) V300 Armored Car | Panama Viejo | 1,500m | Catastrophic kill. |
| (2) V300 Armored Car | do | 2,200m | Do. |
| (3) Storage Shed w/Snipers | Commandancia | 1,500m | Totally destroyed. |
| (4) POL Storage Shed | Commandancia | 1,500m | Destroyed-ignited. |
| (5) POL Storage Shed | do | 1,900m | Do. |
| (6) PDF HQ Building .50 cal MG Bunker | Commandancia 3rd Floor | 1,900m | Neutralized. |
| (7) PDF HQ Building 7.62mm MG Bunker | Commandancia 4th Floor | 1,900m | Do. |

Mr. **Young**. Should we be considering HELLFIRE as a multipurpose weapon instead of just an antiarmor weapon?

General **Cercy**. We are looking at that. It has that potential.

Mr. **Young**. Did the Panama operation accelerate your thinking on that or was that something you had been doing anyway?

General **Cercy**. Both. We had been doing it anyway, and of course it piqued our interest.

Mr. **Young**. Would a broader operational utility of HELLFIRE being factored into your Army plans for restructuring the force have any effect on those plans if you decided to use it in a multipurpose way?

General **Cercy**. I can't commit on that now. We are looking at the potential, as I indicated.

Mr. **Young**. There has been discussion about a HELLFIRE modular missile system which would enable incorporation of improvement by simply exchanging sub systems. One improvement already made has been the smokeless motor. ———. Is that the case and how would they improve HELLFIRE?

General **Cercy**. Yes, sir. The threat continues to improve its hardness as far as us being able to penetrate it. ———.

Mr. **Young**. Are these included in your fiscal year 1990 or 1991 procurements?

General **Cercy**. Yes, sir, they are in the HELLFIRE optimization program, the HOMS program, the follow-on. It is 1993, sir.

Mr. **Young**. What is the status of the ground-launched HELLFIRE?

General **Cercy**. Sir, we do not have a requirement right now for a ground-launched HELLFIRE. We are looking at that but so far nothing has taken place as far as initiating a program to do that.

Mr. **Young**. Is this a possible candidate for light forces?

General **Cercy**. It could be, yes, sir.

Mr. **Young**. You are not at the point where you are able to make that decision yet?

General **Cercy**. No, sir, we are not.

Mr. **Young**. Thank you.

Mr. **Murtha**. Mr. McDade.

### STINGER MISSILE

Mr. **McDade**. Thank you.

General, you were having difficulties with Stinger test problems. Can you tell us what is going on there? Are those problems solved? Are you accepting Stingers from the contractor now?

General **Cercy**. We started to accept Stinger missiles on 19 March. We have two problems, one of which we refer to as the hidden target. When the target is ——— in that specific scenario—however, if you think about a battlefield, seldom will you see ———. So it is not something that we would see a lot of; yet, it is a problem we are trying to fix.

We have made some modifications and flown some test flights and done some simulations.

The other problem is an ———. We think we have the ——— problem solved. In fact, simulations show that we do and firings are scheduled shortly to ——— to actually prove that.

We think we have gotten a little better against the hidden target and we think we have solved the ——— problem.

Mr. McDade. A GAO report said that the Army Research Institute study found that 78 percent of Stinger gunners are projected to perform below the desired level. Is that an accurate statement, quoting the Army Research Institute study?

General Cercy. That goes back several years in the early 1980s and that has been basically disproven in tests and even the Afghanistan experience.

Mr. McDade. The Afghans didn't have a lot of problems with it?

General Cercy. No, sir.

Mr. McDade. That is a non-problem?

General Cercy. Yes, sir.

## NIGHT VISION DEVICES

Mr. McDade. Let me go to night vision devices. Even though they are not in the accounts covered today, we need to talk about them. I understand there is a witness here who can speak with some authority on them. A total of $62.2 million is requested for three different types of night vision devices.

Night vision devices were used very successfully in the Panama operation, although controversy continues about the safety of the night vision goggles used by helicopter pilots.

Describe to the Committee the extent to which these devices were used in Operation Just Cause, and whether they were successful.

General Cercy. There are several types of night vision goggles. The AN-PVS-7 is a third-generation goggle that the foot soldier uses on the ground. The precursor was the PVS-5, an image intensification set of goggles. When we went from the 5 to the 7, we went to a monocular version as opposed to the binocular version.

The aviators system is the ANVIS-6 and those are used in all the helicopters with the exception of the Apache, which has its own PNVS system where he sees from a FLIR.

Mr. Murtha. Let me make sure I understand. The latest model is in all the helicopters now?

General Cercy. The pilots wear the ANVIS latest goggles.

Mr. Murtha. Let me make sure. That model they all have, when I was riding in a helicopter there were two different models and they gave me the latest model, so everybody in the field has the latest model?

General Cercy. No, sir. We are still flying with some PVS-5s. That is the one designed for the foot soldier, not for the aviator.

Mr. Murtha. You have less peripheral vision and it is heavier. What is the difference between the two?

General Cercy. The image intensification itself is better in the ANVIS. It is a third-generation technical piece as compared to the PVS-5, which is second generation. I believe the peripheral vision is better in the ANVIS as well.

Mr. Murtha. What percentage of people have the newer goggles in helicopters?

General Cercy. All the folks that flew in Just Cause flew with ANVIS.

Mr. **Murtha**. I want to know throughout the system.

General **Cercy**. Major Jack Kimberly is the assistant project program manager. He says 80 percent to the Special Operations Forces, 60 percent to the rest of the active forces as far as the ANVIS is concerned at this time.

Mr. **Murtha**. So there is 40 percent outside the Special Operations Forces that do not have the new goggles?

General **Cercy**. Twenty.

Mr. **Murtha**. Eighty percent in the Special Operations Forces have them and then you said 60 percent outside the Special Operations Forces.

Major **Kimberly**. The active Army is getting 60 percent fielding.

Mr. **Murtha**. So 40 percent of the active forces don't have the new goggles outside the Special Operations.

Major **Kimberly**. Each unit is fielded at a rate of 80 percent, 60 percent and 40 percent. The SOF units get 80 percent fill of their maximum, the active units get 60 percent fill of their 100 percent and the Guard and Reserve get 40 percent fill of their actual 100 percent.

Mr. **McDade**. To what extent were the night goggles used in Operation Just Cause? Tell us about that.

General **Cercy**. I would like to let Major Kimberly do this. He interviewed the folks from the 7th Infantry Division.

Mr. **McDade**. Is this your first time before the Committee?

Major **Kimberly**. Yes, sir.

Mr. **McDade**. Glad to have you here. Tell us the extent to which they were used in Operation Just Cause.

Major **Kimberly**. All night operations during Just Cause were flown with the ANVIS system.

Mr. **McDade**. Every pilot who flew a chopper in Just Cause had the new system?

Major **Kimberly**. Yes, sir. Ground soldiers used PVS-7s and the PVS-5s which are the two ground systems that General Cercy said.

The PVS-5 is a binocular, two image tubes. The PVS-7 is a monocular. What the PVS-7 gives over the PVS-5 is that we can now put a third-generation tube in the PVS-7, the same capabilities that the ANVIS has now.

The PVS-5 only has a second-generation tube.

Mr. **McDade**. The PVS-7 needs another fix?

Major **Kimberly**. No. It is being fielded at this time with third-generation tubes, better performance than the PVS-5 second generation.

Mr. **McDade**. What was the requirement and the on-hand? How many youngsters that had a need for the latest system had them?

Major **Kimberly**. All units. There was an engineer unit in the 7th deployed with PVS-5s but the rest PVS-7s.

Mr. **McDade**. People in the front doing the missions had the PVS-7s?

Major **Kimberly**. Yes.

Mr. **McDade**. Describe how they were used and how they worked.

Major **Kimberly**. On the ground PVS-7s and 5s were used in observation, some movement to contact where the actual battle is, security observation posts.

Mr. McDade. You interviewed the people who used them?

Major Kimberly. Yes, sir.

Mr. McDade. What was the experience of the individuals who used them on the ground? Did you find any problems? Was there a general level or high level of satisfaction or what was the circumstance?

Major Kimberly. One example is the 7th ID at Fort Ord, a good clone, called the Masters of the Night. They trained with them consistently even prior to Just Cause. Every individual was given their goggles. When they got out to train, they are with them all the time just like their protective masks and their weapon. They are trained annually on how to use the individual goggles.

This lent itself very well when they were deployed to Just Cause.

Mr. McDade. Up and ready to use them at times when they go out, they have them with them and when you called on them for a night operation like Just Cause, they were fully trained as best they could be as far as you are concerned?

Major Kimberly. Yes, sir.

Mr. McDade. To use them in hostile environment?

Major Kimberly. Yes, sir.

Mr. McDade. What did it do for the youngster in that hostile environment?

Major Kimberly. It provided them to be able to see at night, be able to attack a target that may not be illuminated by flares, by any type of artificial illumination, to be able to see where they were going, to be able to plan the next mission.

There was one observation officer who informed me that he had taken his unit to a hilltop and observed an objective. He planned the mission by using a light-emitting diode that is in the operating spectrum which the goggle can see, like a pointing arrow you use on the board or like a laser. He points out and says, "I want you to move your men to the left around this building. I want you to attack that target and that—these are civilians, be sure not to move into that area."

The individuals who came away from that briefing thought they were better briefed to do the mission than any they had prior to that.

Mr. McDade. Did you find any problems at all in the performance of the goggle? Did you find any difficulties any place?

Major Kimberly. No, sir. When they were deployed that took enough maintenance to maintain them down there. They did lose a couple of tubes which was expected, some because they failed, others because they were either destroyed, when they jumped they had the goggles in their field jackets, some while they were laying on the floor of an aircraft because of the handling, et cetera. Besides that, no, sir.

Mr. McDade. In other words, any difficulties were foreseeable and expectable, there were no surprises?

Major Kimberly. No, sir.

Mr. McDade. That is really something to hear.

Let me ask another question, if I can, General. There was a program on national television recently which I did not see, you may have. It said helicopter pilots using night vision goggles in effect have 20/50 vision when they are using them. Do you agree with that statement about night vision goggles? Are you the expert, Major, or should I turn to the General?

Major **Kimberly**. Yes, sir, 20/50 is visual acuity which is stated for the PVS-5. Bear in mind, without or unaided, you have no better than 20/200.

Mr. **Murtha**. We have brought this issue up a number of times in the Committee. I have flown in a helicopter at night when it was raining, a Black Hawk was just in front of us and we were in a smaller helicopter with one of the best pilots the Army has. As a matter of fact, he went over to the Persian Gulf and was involved in sinking ships over there. So I had great confidence in this one particular pilot and the system.

What Mr. McDade and what this Committee are concerned about is, are we abusing the system? For instance, I think we all have a tendency to have something like this go beyond the bounds or the capability of the system itself. I know the Air Force has had a couple of crashes—I don't know that the Army has—that were contributed to night goggles. Is our training adequate and do we make sure that the people know that there are limitations to these night goggles before we send them to the field? Do we have a number of accidents that have been attributed to not being able to see with these goggles?

Major **Kimberly**. Training, sir, let me address that one first, training that the Army provides for night vision goggles is very thorough. There are standards that you fly by. I am a qualified and current aviator at this time, also qualified and current in night vision goggles.

Mr. **Murtha**. How many hours do you have in night flying?

Major **Kimberly**. Night vision goggles, about 100 hours at this time. Whatever you can do during the day, sir, you can do at night with night vision goggles. The training has advanced that far.

A good example: We are doing multi-ship operations in Just Cause. We have six ships going into one Loading Zone (LZ). It is all coordinated, no lights, there to do a mission in a split second. We do that during the day and we practiced that. Now we are doing that during the night.

Mr. **Murtha**. I know when I was down in Panama, we had an area that was not much bigger than this room where two Black Hawks landed at night and we could not get to it at the daytime because the wind was so strong, but they were able to get into this fenced-in space.

In a war situation, I could understand that you could go perhaps beyond the limits, but what I am worried about, are we going beyond those limits in training? Is our training sufficient to make sure that it is safe flying, that is what I am asking, I guess. Are you confortable with the limitations placed on you and what you can do with using these night vision goggles?

Major **Kimberly**. Sir, you can train around the limitations. I don't consider them limitations. I have 20/50 vision with the PVS-5 rather than 20/20. At night I would have 20/200. 20/50 is good. With ANVIS, I can get 20/40.

Mr. **Murtha**. That is an admirable attitude, but I am worried that must be some limitation. I worry if there is low visibility that you just cannot see with them.

Do you feel that even with low visibility, no artificial lighting, that you can go into a place just like you could in the daytime?

Major KIMBERLY. Sir, any operation that is planned is usually practiced.

Mr. MURTHA. I am not asking that. What I am worried about is if we are not going beyond the limitations. In your estimation, in your flying, are there enough safeguards that the pilots we are sending out using the night vision goggles are trained in safety?

Major KIMBERLY. Yes, sir.

Mr. YOUNG. Mr. Chairman, will you yield for a question?

These goggles tend to be heavy. Are you talking about binocular or the monocular?

Major KIMBERLY. The ANVIS is a two-tube system.

Mr. YOUNG. They are fairly heavy?

Major KIMBERLY. No, sir. They weight about a pound.

Mr. YOUNG. But they are in front of your face. Is there counterweight in the back of your helmets?

Major KIMBERLY. Pilots are individuals. They can fly with or without a counter-weight. It is comfortable for me. I use it. It is about 22 ounces, the counter balance, based on the distance.

Mr. YOUNG. What kind of physical limitations does this place on you? How long can you fly comfortably before you feel the strain from this added weight?

Major KIMBERLY. Myself, because I don't consistently fly like, say, the Special Operation Forces at night where they fly six to eight hours at night; I fly two to five, and at that time it may be tiresome. But not being trained to go in there, begin training is the key.

Mr. YOUNG. And the development of the muscles that support the head.

Major KIMBERLY. Yes, sir.

Mr. YOUNG. You find it is not such a limitation.

Major KIMBERLY. No, sir.

### SOUTHWEST ASIA PETROLEUM DISTRIBUTION SYSTEM

Mr. McDADE. Major, thank you very much. The Committee appreciates your testimony. You did a fine job.

The Army has the mission of providing bulk petroleum fuels distribution to all DOD land-based forces in a theater of operations. A total of $56.2 million is requested for Central Command's Southwest Asia Petroleum Distribution System in fiscal year 1991 budget.

What percentage of this program will be completed if the Congress approves the fiscal year 1991 request?

General RIGBY. We estimate 80 percent.

Mr. McDADE. Has the Army received any revised OSD guidance on criteria regarding increased emphasis and/or de-emphasis that DOD would be making in terms of the Middle East and Southwest Asia region of the world?

General RIGBY. Everything is under review. At this time we are finishing up with developing the objective force for fiscal year 1995 which will be based on threat. This will be reflected in our 1992–1997 POM submission.

Mr. McDade. To what extent is the equipment pre-positioned in the region where it would be deployed in case of war?

General Rigby. At the present time we do not have any operational stocks in the theater. The operational stocks are stored currently at Pueblo Army Depot. Shortly they will be moved to Sierra Army Depot because the Pueblo is being realigned. But we do have four training modules, located at Fort Lee, Fort Leonard Wood, Fort Pickett. And a Joint Training Exercise module currently located at Pueblo Army Depot.

Mr. McDade. Do you have any intention to pre-position the supplies?

General Rigby. Sir, the Commander in Chief CENTCOM has tried repeatedly to gain access rights to pre-position the material in the area of operations, but thus far we do not have a major preposition.

Mr. McDade. Thank you.

Thank you, Mr. Chairman.

Mr. Murtha. Are there any other questions?

Mr. McDade has additional questions for the record.

The Committee will stand adjourned until 10 o'clock tomorrow.

[Clerk's note.—Questions submitted by Mr. McDade and the answers thereto follow:]

### PALLETIZED LOADING SYSTEM—FLATRACKS

*Question.* Concurrent with acquisition of the PLS, the Army will also procure flatracks of various types for the transport of ammunition and other equipment. Please describe the acquisition strategy for these flatracks. In particular address:

Will these be procured by the PLS prime contractor or will they be procured separately by the Army (as GFE)?

Answer. The initial flatrack acquisition will be part of the PLS production contract. Once TDP is available, procurement will be done on a competitive basis. Flatracks will not be supplied as GFE.

*Question.* What is the total flatrack acquisition objective, and procurement profile (please provide both quantities, types of flatracks, and estimated acquisition cost by fiscal year).

Answer. Our current budget supports a quantity of 103,000 storage (conventional, i.e. not enhanced) flatracks. For the current budget years the quantities of flatracks are, FY 1990—545, FY 1991—2053 at a cost of $5,114 each (constant FY 1989 dollars). However, the Army is in the process of looking at force structure downsizing necessary to go to smaller, more capable forces and the above total quantities may change.

*Question.* Does the Army intend to direct the PLS prime contractor to dual source or compete the flatrack procurement? If so, would this be done on an annual basis? If not, why not?

Answer. The PLS production contractor will be required to initiate a program to qualify one small and disadvantaged business concern for manufacture of PLS flatracks under the five-year multiyear contract. The qualification of this source is to take place no later than the third program year of the basic PLS production contract utilizing the flatrack TDP which is deliverable twenty-four (24) months after contract award. This program is to result in the qualified small disadvantaged business concern producing a percentage of the respective flatrack production for the fourth and fifth program years of the multi-year contract.

*Question.* In last year's hearings before the Committee, and in the Committee report to accompany the FY 1990 Appropriations Bill, we expressed our concern that the Army may not be addressing adequately the requirements for flatracks which while compatible with the PLS are also optimized for air and sea transport. Have these concerns been addressed by the Army?

Answer. MTMC(TEA) has conducted two studies on flatracks. The first was an Aug. 1988 study to determine whether flatracks could be redesigned to make it compatible with USAF cargo aircraft. It was found that the flatrack bottom could not be made compatible and still meet interoperability requirements. Although rails could be incorporated, they would increase weight, decrease flatrack capacity, and would not meet "G" force load requirements. MTMC(TEA) conducted another study in July 1989 to evaluate a PLS Aircraft Compatible Flatrack, but found that deck height and weight increased, still required material handling equipment, and did not appear to improve ammunition transport capability. TRADOC is conducting an on-going PLS Follow-on Study and has convened a Flatrack Joint Working Group which is studying requirements for the improved flatrack.

The tentative schedule is:

FY 1990 identify and define user requirements to include decision on single design or inclusion of special use flatracks (ROC change).

FY 1990–1991 improved flatrack will be designed and built simultaneously with M1077 flatrack low rate production in current contract.

FY 1991-1992 testing will be conducted and once a flatrack has been identified to meet the new requirements, production will cease on the old flatrack and begin on the improved flatrack. Small Disadvantaged Business is prepared and qualified for flatrack production program.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade. Questions submitted for the record and the answers thereto follow:]

### PATRIOT MISSILE

*Question.* In fiscal year 1990, a total of $13.6 million was budgeted and funded for the north finding module, antenna mast set and arm decoy set. This year's budget contains no mention of these activities in 1990. Why weren't the funds used as requested?

Answer. The funding was needed to cover an increase in launching station prices which the Army had underestimated. The original estimated prices were based on previous multi-year prices; however, the fiscal year 1990 buy of launchers was not under the orginal multi-year contract. Instead, these launchers were part of a multi-year option which was negotiated after submission of last year's request.

*Question.* The 1990/1991 budget submitted last year included $859.9 million for 817 Patriot missiles. This year the 1991 estimate is for $883.2 million, an increase of $23.3 million. Why has the fiscal year 1991 estimate changed since last year?

Answer. The increase in the Patriot line reflects a change in Department of Defense inflation indices. This increase was applied to contractor engineering, integrated logistics support and software support.

*Question.* Are any program termination costs included?

Answer. No.

### AIR DEFENSE ANTITANK SYSTEM (ADATS)

*Question.* In recent live fire tests conducted by Army troops, the ADATS missile had six hits in seven attempts. However, reliability seems to be a major problem. What is the current status of 1989 and 1990 funds which were fenced by the Congress? What do you still have to do and when do you plan to do it so the funds may be used?

Answer. The restrictions on obligation of fiscal year 1990 missile procurement funds were met and a letter contract awarded in August 1989. Restrictions of fiscal year 1990 missile procurement obligations require: completion of Initial Operational Test and Evaluation; certification by the Secretary of Defense that ADATS met or exceeded its operational performance criteria; and submission of reports by Director, Operational Test and Evaluation and the Comptroller General. Initial Operational Test and Evaluation missile firings were successfully completed in March 1990 as you cited. A General Officer Test Readiness Review is being conducted today and is expected to approve start of the Initial Operational Test and Evaluation Maneuver Phase on 9 April. After conclusion of this test phase, a series of In Process Reviews will be conducted which will culminate in submission of the required certification and reports. Our estimate is that the fiscal year 1990 contracts could then be awarded in early August 1990.

### STINGER MISSILE

*Question.* The 1990 budget had included 1991 advanced procurement funding to support a three year multiyear acquisition strategy for Stinger missiles. Explain your revised plan and the reasons for the change.

Answer. Due to projection of only a 3.9 percent cost avoidance when compared to annual buys, the Army abandoned the multiyear strategy. The Army strategy is to competitively split the missile buys between General Dynamics (GD) and Raytheon.

*Question.* Last year test problems with Stinger, especially against ——— resulted in the Army refusing to accept missiles. What are the latest test results?

Answer. Contractor engineering tests using the latest software, MOD III/34, and simulation results indicate that the missile susceptibility ——— problem is solved. Contractor validation testing has yielded three direct hits in three valid flight tests to date. Upon completion of contractor flight tests, Government verification tests are scheduled to validate the new software. We believe that future testing and the resultant performance assessment will show that the system meets specification requirements.

*Question.* How many have been accepted and how many still remain in the bunker?

Answer. The Army has accepted a total of 4217 Stinger-RMP missiles (2749 Army only). An additional 3000 missiles have completed fly-to-buy acceptance testing and are in the last phase of completing the administrative processing (DD250). Fly-to-buy testing and administrative processing must be completed on another 2500 final assembled missiles in the bunker, prior to Army acceptance.

*Question.* A recent GAO report indicated that an Army Research Institute study found that approximately 78 percent of Stinger gunners are projected to perform below the desired level. What impact does this have on weapon system effectiveness?

Answer. The ARI study was conducted in the early 1980's and was based on MANPRINT analysis of the 19 step firing sequence for the Stinger missile. This study's conclusion has been disproved by numerous U.S. Army operational tests and live firings. In addition, the employment of Stinger in Afghanistan also proved its ease of operation.

The only effectiveness data in the formula to determine system effectiveness, that includes human reliability, is the probability of detection ($P_{DET}$). $P_{DET}$ is currently rated at ——— for fixed-wing aircraft and ——— for rotary wing aircraft.

*Question.* What is the Army doing to improve this situation?

Answer. Stinger MANPAD gunners continue to receive quality training that supports the PDET effectiveness data presently represented by this effectiveness model.

*Question.* Describe the hidden target problem, how often it might occur operationally, and what the Army is doing to address it.

Answer. The hidden target occurs when ———. In this relatively infrequent instance, the target may be ——— of the missile. Investigation and analysis are ongoing to determine a solution.

The Stinger-RMP gunner and Avenger fire units employment doctrine reduces the effect of this ——— problem. No more than one gunner should be precluded from firing and the target should be engaged by other gunners.

*Question.* The December 1989 Selected Acquisition Report indicates that Stinger buys will continue through fiscal year 1996, resulting in an inventory of 59,000. In light of recent developments, is the Army reviewing its acquisition objective for Stinger?

Answer. In light of the recent changes in the threat and the Army force structure, the Army is reviewing all of its programs including Stinger.

## ARMY TACTICAL MISSILE SYSTEM

*Question.* The original full-scale development contract for Army TACMS has fixed-price options for two alternate procurement profiles for the first 1,000 missiles. The current procurement profile fits neither of these alternatives. What additional procurement cost resulted from having to renegotiate the contract for the current profile?

Answer. The basic program options for 1,000 missiles (1 year of low-rate initial production (LRIP) and 3 years of full-rate production (FRP) were $46.1 million less than the current contract options for 1,000 missiles (2 years of LRIP and 3 years of FRP). However, the basic program options were not executable due to a slip in operational testing and a $55 million cut in FY 1990 funding. The total price for the contract "off-ramp" options for 1,018 missiles (2 years of LRIP and 3 years of FRP delivered over a 54-month period) was the same as the current contract options for 1,000 missiles (2 years of LRIP and 3 years of FRP delivered over a 48-month period). The price increase would be the value of 18 missiles (approximately $7.6 million). The advantages of the options pursued are that they provide for an orderly transition from LRIP to FRP and provides a sufficient quantity of missiles to meet current fielding plans.

*Question.* For the record provide the delivery schedule for the first 3 years of Army TACMS procurement.

Answer. Contract Delivery Schedule (1st 3 Years)

| CY | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LRIP-1 1990 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 7 | 8 | 10 | 66 |
| LRIP-2 1991 | 10 | 10 | 10 | 10 | 10 | 12 | 14 | 14 | 14 | — | — | — | 104 |
| FRP: 1991 | — | — | — | — | — | — | — | — | — | 17 | 19 | 22 | |
| 1992 | 22 | 24 | 25 | 30 | 30 | 30 | 33 | 33 | 33 | — | — | — | 318 |

## AVENGER PROGRAM

*Question.* Explain the change in the fiscal year 1991 Avenger program for $110.1 million for 132 fire units in the 1990 submission to $97.4 million for 88 units contained in the 1991 submission.

Answer. By awarding the fiscal year 1992 contract option 4 months earlier than previously planned, it was possible to shorten the fiscal year 1991 funded delivery period to 8 months. The fiscal year 1991 Avenger fire unit buy was reduced accordingly to accommodate the reduced delivery period. No cost impact is expected in the five year multiyear contract.

*Question.* How much of the $322,000, or 30 percent, increase in unit cost from 1990 to 1991 is due to the lesser quantity?

Answer. The fire unit hardware only cost increased by approximately $16,000 from the fiscal year 1990 submit to the fiscal year 1991 submit. The increase in the total unit cost was driven by the purchase of depot maintenance plant equipment (DMPE), cut-in of environmental control units/prime power units (ECU/PPU), and procurement of training and maintenance equipment to include test program sets.

*Question.* Avenger is proposed for a five year multiyear procurement beginning in 1991. What are the estimated savings compared with annual buys?

Answer. The estimated cost avoidance is 9.3 percent or $33.8 million over annual buys.

*Question.* The budget includes $5.4 million for FAADS integration. Isn't that one of the main purposes of FAADS command and control system, which is experiencing some difficulties and delays?

Answer. This is not related to FAADS command and control system. FAADS command and control is separately funded in the budget. It represents the Avenger portion of the Program Executive Officer, Air Defense's FAAD integration tasks. These tasks performed by both the government and the system integration contractor, ensure a coherent, coordinated development and fielding of the FAAD system.

### NON LINE OF SIGHT

*Question.* Last year the Administration requested and the Congress appropriated $32.5 million for advance procurement for the non line of sight, fiber optic guided missile system. This year, the Army intends to complete development of the system but not proceed into procurement. What is the status of the $32.5 million? Where is it and who controls it? How does the Department intend to use it?

Answer. The $32.5 million in NLOS advance procurement funds will be reprogrammed to finance a shortfall in the fiscal year 1990 DOD Counternarcotics program.

*Question.* During the past year has there been any change in the threat NLOS is intended to counter?

Answer. No. The primary threat NLOS is required to counter remains the helicopter masked by terrain or other obstructions and out of the range of line of sight systems. There is a secondary role to defeat enemy armor beyond the range of friendly line of sight weapons.

*Question.* What is the status of the development contract? Haven't costs risen dramatically in the last year?

Answer. Full scale development effort is now in its 16th month of a 43 month effort. The preliminary design review is complete and the critical design review starts this month. Hardware is currently being assembled with seeker captive flight tests beginning October 1990 and initial firings planned to start December 1990. The Army Cost Position has not changed. The NLOS contractor did thoroughly underestimate his development costs. The Program Manager is taking actions to revitalizate contractor management and institute contract incentives for the contractor to gain control of his cost growth. Despite this, the current estimated cost to complete the full scale development effort remains within the amount estimated and budgeted by the Army.

### IMPACT OF FORCE STRUCTURE CHANGES

*Question.* The quantity of equipment to be bought in most of the programs in the "Other Procurement, Army" account is directly affected by the size of the Army's total force structure.

Has this account been evaluated in terms of the impact of the potential force structure adjustments that may be made by Congress in concert with the Administration as a result of CFE (Conventional Force Europe) discussions?

Answer. The Army is currently reviewing the force structure required as a result of the Conventional Force Europe discussions as well as force structure reduction proposals driven by reduced TOA. However, this review is incomplete. Although the OPA account has not yet been evaluated in terms of potential force structure adjustments, it will be evaluated for the FY 1992–1997 POM now under development. Additionally, OPA 1 & 3 have traditionally fallen short of requirements so any major adjustments in force structure are not anticipated to have significant impacts on the OPA accounts in this budget request.

*Question.* If the account has not been evaluated from that perspective, please do so and submit to the Committee the impact on any fiscal year 1991 requirements that may change as a result of force structure changes that may result from the CFE talks.

Answer. It is anticipated that no major changes will occur in FY 1991 as a result of the on-going review.

### TACTICAL TRUCKS FOR RESERVE COMPONENTS

*Question.* In fiscal year 1990, Congress appropriated $60 million for the National Guard and $60 million for the Army Reserve for the procurement of tactical trucks. How do you propose to use these funds and what criteria were used in making the allocation?

Answer. The funds in question are Dedicated Procurement Funds for the National Guard and Reserves. They will be used to purchase the following:

[In millions of dollars]

| | National Guard | Reserves |
|---|---|---|
| 10 Ton Tankers (HEMTTs) | 60 | 22.7 |
| 10 Ton Wreckers (HEMTTs) | | 32.9 |
| M916A1 Line Haul Tractors | | 5.0 |

The National Guard purchased HEMTT Tankers because of a need for fuel carriers and to take advantage of the fiscal year 1989 HEMTT contract. The Reserves purchased the above equipment to satisfy deficiencies in forward area refueling, wreckers, and line haul.

*Question.* In the presidential debate between Bush and Dukakis on October 13, 1988, then Vice President Bush was asked for examples of military programs he would cut. Vice President Bush responded by identifying the HEMTT as "purely waste," and only in the budget because a "very powerful" member of Congress put it there. Is President Bush aware that the Army itself is now buying this wasteful truck?

Answer. The context of the remark referred to the legislative directed procurement of 4,700 HEMTTs at a time when available resources would have caused us to unfund higher priority programs to meet this commitment. There is no question that the HEMTT is a good truck and that requirements exist. It was simply a question of affordability versus priority. I briefed the Committee on this last year and requested relief from legislation for purchase of remaining 4,700 HEMTTs. You shared the Army concern and saw fit along with the other three Committees to grant us relief of the 4,700 directed buy.

*Question.* Why has the Army changed its mind about the HEMTT?

Answer. The Army has not changed its mind about HEMTT. The Army's position has consistently been that a valid requirement exists for additional HEMTTs, however, they are considered unaffordable based on the Army's limited budget and other higher priority requirements.

*Question.* What are the contract milestones for the procurement of these trucks?

Answer. It is planned to fully exercise the currently open contract option for 363 vehicles in May 1990. This award will be a combination of National Guard and Army Reserve-funded requirements. As this option does not cover all the requirements of these customers, we plan to negotiate a contract modification to include the balance of these requirements. This second award is planned for September 1990.

### FAMILY OF MEDIUM TACTICAL VEHICLES

*Question.* The budget includes $56.3 million for the initial procurement of the Family of Medium Tactical Vehicles. What is the status of this program?

Answer. Program is on schedule. Test vehicles were delivered to the Government in January 1990 and competitive test phase is now in process.

*Question.* Secretary Stone recently notified the Committee that this program had exceeded the Program Acquisition Unit Cost by more than 25 percent. What happened?

Answer. The Nunn-McCurdy breach resulted from reporting, in the 31 Dec 89 SAR, the constrained, minimum procurement strategy in the Tactical Wheeled Vehicle Modernization Plan dated 12 Apr 89, which is a 30 year procurement program. Much of the increase was caused by the effects of inflation caused by showing the procurement program as 30 years as opposed to 15. The breach is a cost breach only and not the result of any cost growth of the end items or effort in the FMTV program.

*Question.* Last year you expected to be requesting $78 million in fiscal year 1991. What accounts for the reduction?

Answer. The reduction resulted from a 2 month slip in projected contract award (Feb 91 to Apr 91) thereby reducing the quantity of vehicles that could be produced within the funded delivery period.

*Question.* What are the current milestones for this program?

Answer. Prototype Test, 01/10/90 to 12/31/90: ASARC III, 03/15/91; Production Award, 04/15/91; Production Lead Time 04/15/91 to 05/15/92; Shakedown Test, 02/28/92 to 04/30/92; Initial Production Test, 05/15/92 to 02/15/93; First Unit Equipped 04/30/93.

*Question.* Describe the procurement strategy for this program.

Answer. The FMTV is being procured in the same manner that the Army procured the HMMWV. Contracts have been competitively awarded to three contractors for the preproduction phase. Under this phase the government will test each competitors product and evaluate their production proposals. Production award will be made to the competitor who offers the "best value" production proposal. The production contract will be a 5 year multi-year contract. The contractor will be required to successfully pass the intial production test prior to being given the go-ahead for quanity production. A technical data package is delivereable under this production contract and will be used as the basis for subsequent competitive production contracts.

*Question.* Last year you forecast a five-year multiyear contract for 18,704 vehicles at a total cost of $1.7 billion. What is the current program. For the record, provide a complete procurement profile.

Answer. The following is in support of the President's Budget:

| | FY 1991 | FY 1992 | Total |
|---|---|---|---|
| Millions of dollars | 56.3 | 1,656.9 | 1,713.2 |
| Truck Qty | 392 | 18,286 | 18,657 |

*Question.* Will additional FMTV's be procure beyond the multiyear contract. If so, what will be the procurement strategy?

Answer. Under review—if bought, the vehicles will be procured competitively under a new multi-year contract using the technical data package delivered under the initial production contract.

*Question.* For the record, provide the monthly delivery schedule for the first two years of procurement.

Answer. The current program plan for production contract award is April 1991. The production lead time period is the time allotted to the contractor to facilitize trucks. Low rate production continues until IPT and IOT&E are completed. The planned production quantities for the first two years of the program are indicated in the table below. A program schedule is also included for reference. As a comparison, current "full rate" production of the M939A2 Series trucks is currently at 40/day or 800 per month. "Low rate" production for FMTV is planned to be 200/month until all production testing is complete.

| Month and Year: | *Production Quantity* |
|---|---|
| April 1992 | 92 |
| May 1992 | 92 |
| June 1992 | 92 |
| July 1992 | 95 |
| August 1992 | 150 |
| September 1992 | 150 |
| October 1992 | 200 |
| November 1992 | 200 |
| December 1992 | 200 |
| January 1993 | 200 |
| February 1993 | 200 |
| March 1993 | 200 |
| April 1993 | 200 |
| May 1993 | 200 |
| June 1993 | 200 |
| July 1993 | 200 |

*Question.* Compare unit costs for the M939 series five ton trucks now being procured from BMY with the comparable FMTV vehicles and explain the differences.

Answer. Per the BMY contract awarded May 1986, vehicle cost for the M923A2 cargo model without Federal Retail Excise Tax but with 3 percent for Engineering Change Proposals as of August 9, 1989 is $57,409 in FY 1989 constant dollars. Changing to FY 1990 constant dollars gives $59,787. For the FMTV, hardware additions include: A 10 year corrosion protection requirement (galvanized steel), CARC paint on solid cab roof, transmission sampling valve, NBC protection unit, 3 point shoulder harness, steering lock, etc. The projected cost for the FMTV basic 5 Ton Cargo Vehicle is $61,059 in FY 1990 constant dollars and is based upon the FMTV Baseline Cost Estimate, revised in March 1990.

### PHASING OUT OLD TACTICAL WHEELED VEHICLES

*Question.* One of the features of the Tactical Wheeled Vehicle Modernization Plan which was submitted to the Committee last year is the phasing-out of old vehicles which have become difficult and expensive to maintain. What is the status of this program?

Answer. The program is on track and progressing well. Approximately 15,000 vehicles have been offered to Foreign Military Sales (FMS) customers or retired from the system as of April 2, 1990.

*Question.* Last year you testified that more than 12,000 GOER, Gama Goat, M123, 2½ ton, M151 jeep, and M880 vehicles would be retired in fiscal year 1990. What are your current plans?

Answer. The published Tactical Wheeled Vehicle Modernization Plan forecast the turn of approximately 22,000 vehicles in FY 1990. As of April 2, 1990, approximately 15,000 vehicles have been retired. The Army plans to continue phasing out these vehicles. The Army has delayed the phasing out of National Guard 2½ ton trucks (gas models, approximately 2,000) due to the impact on National Guard unit readiness. The phase out of these vehicles is delayed until FY 93/94 when the Family of Medium Tactical Vehicles (FMTV) fieldings will be ongoing.

*Question.* Do you still estimate $60.5 million in O&M savings in fiscal year 1990 as a result of the retirement program? If not, what is your current estimate and why has it changed?

Answer. No. The required 1990 fiscal year O&M savings is $39.5 million based on achieving retirement of 19,303 vehicles (revised FY90 goal). The change was in part due to Gama Goats and M123s not being retired to support the FAAR. M123 were not washed out because replacement vehicles were not available.

*Question.* For the record, provide the complete phase-out plan, by year and vehicle type.

Answer. The phase-out plan for FY 1991 is as follows:

| *Type of vehicle* | *Quantity* |
|---|---|
| M151 | 1,984 |
| M880 | 6,000 |
| 2½ and 5 Ton Trucks | 300 |
| Total | 8,284 |

### COMMERCIAL UTILITY CARGO VEHICLES

*Question.* In the Mid-1980's, the Army bought more than 70,000 Commercial Utility Cargo Vehicles (CUCV). These were commercial Chevrolet pick-up trucks bought "off the shelf" to satisfy many of the requirements fulfilled by jeeps. The unit cost of these vehicles was about $10,000 compared to the $30,000 it costs to buy a HMMWV, the jeeps replacement. By all accounts this has been a very successful program. Last year, the Committee questioned the Army's decision not to include replacement of this vehicle in the

Wheeled Vehicle Modernization Plan. What are the Army's current intentions with respect to a replacement for the CUCV?

Answer. In the mid 1980's (1983–1986) the U.S. Army purchased 55,000 CUCV's for Army use and 15,000 for other services. In general the program was a success except in some applications where the vehicle was used where a more mobile, off road vehicle was required. This is true particularly in the light infantry division where air delivery is required and a high percentage of off road use is expected. The Tactical Wheeled Vehicle Modernization Plan calls for a decision on a CUCV rebuy in FY95. We intend to make the decision based on comparative life-cycle costs and other considerations at that time. The unit costs stated above do not appear to be correct. In 1983, the CUCV cost was approximately $13,000 compared to approximately $20,000 for the HMMWV at the same time.

*Question.* What economic analysis has been performed to support this conclusion? Supply a copy for the record.

Answer. The Army is presently collecting data to support the CUCV decision and analysis has not been performed yet. The Tactical Wheeled Vehicle Modernization Plan is being revised and is expected to be published during the 4QFY90. The decision point on the CUCV rebuy is expected to be moved to FY91/92.

*Question.* How long do you expect CUCV's to remain in the inventory? Over what period of time does the Army intend to phase the CUCV out of the inventory?

Answer. As previously stated, we plan to make this decision in FY91/92 based upon comparative life-cycle costs and other considerations. The life expectancy of the original CUCV was 7 years. They are lasting longer and with the force draw down we will be able to selectively retire those in the worst condition while keeping the more serviceable CUCVs until replacements are procured.

*Question.* How many HMMWVs will the Army buy to replace the CUCV, and in what fiscal years will they be funded?

Answer. A decision on a follow-on contract for the HMMWV will not be made until FY91.

*Question.* How many HMMWV's does the Army intend to procure beyond the current multiyear contract, and at what cost?

Answer. The decision on a follow on contract has not been made. It is premature to speculate on the decision now.

### TRUCK SERVICE LIFE EXTENSION PLAN PROGRAM

*Question.* One of the elements of the Army's Tactical Wheeled Vehicle Modernization Plan is a Service Life Extension Program (SLEP) for 2½ and 5 ton trucks.

What is the total cost of this program and how many vehicles of each type will be involved?

Answer. The Army had initially planned to SLEP approximately 31,000 2½ ton trucks and 5,000 5 ton trucks over 10 years at a cost of approximately $1.0 billion. These plans are being reevaluated based on Army force structure reductions.

*Question.* Provide a complete funding profile for the record to include quantities.

Answer. This planning is not complete pending results of the Army's force structure reductions.

## INLAND AND COASTAL WATERWAYS TUGBOAT

*Question.* Last year the Congress provided $7.5 million for a 128 foot tugboat. The primary mission is coastal towing, docking and undocking the newer and larger ocean going craft.

No funds are requested in fiscal year 1991 for this program. How many tugboats have been procured thus far?

Answer. The Army currently has seven (7) tugboats on contract and an option for one (1) more which will be awarded in April 1990.

*Question.* What is the inventory objective for this program?

Answer. The current requirement for this tugboat is thirteen (13) vessels, however, these requirements are under review due to the force structure realignments.

## MEDICAL EQUIPMENT

*Question.* The fiscal year 1991 budget includes requests of $31.7 million for Field Medical Equipment and $72.4 million for Medical Support Equipment. Deployable Medical Systems (DEPMEDS) program funds major medical equipment items for the total Army combat hospital force structure. Within this program, no funds are requested for additional MASH (Mobile Army Surgical Hospitals) units. Have you reached your inventory objective for this subprogram?

Answer. The Army has not met the inventory objective for MASH units of 25 units. Although no funds are programmed in Fiscal Year 1991 for MASH units, twenty-four units are being procured with funding from the fiscal year 1990 and prior year programs. There is one additional MASH unit currently programmed in the outyears.

*Question.* Does the fiscal year 1991 request for Field Medical Equipment take into account potential force structure changes which may take place as a result of the Conventional Forces in Europe Treaty?

Answer. The Army is currently reviewing the force structure required as a result of the Conventional Force Europe discussions as well as force structure reduction proposals driven by reduced TOA. However, this review is incomplete. Although the OPA account has not yet been evaluated in terms of potential force structure adjustments, it will be evaluated for the FY 1992–1997 POM now under development.

*Question.* As mentioned, $72.4 million is requested for Medical Support Equipment. These funds are for the procurement of commercially available equipment required to support health care programs in Army fixed medical treatment facilities. What shortfalls exist in this program?

Answer. There is currently a shortage of approximately $190 million required to replace medical equipment that's overaged, obsolete, or has exceeded its useful life expectancy.

*Question.* To what extent does the fiscal year 1991 request make up that shortfall?

Answer. Due to budgetary funding constraints, the fiscal year 1991 program has a shortfall of $16.0 million. The Army requires approximately $88.0 million annually to allow for a 12-year replacement cycle for the normal replacement of obsolete and worn-out equipment. It should also be noted that the American Hospital Association recommends an 8-year replacement cycle.

### PROTECTIVE MASK, NBC M40/M42

*Question.* The M40/M42 Gas Mask provides a significant improvement over the current family of protective masks in the field. Enhancements in the M40/42 masks, such as voicemitters and drinking capability, result in increased survivability on a chemically contaminated battlefield. Last year the Committee provided $57 million in procurement funding to support the acquisition of over 400,000 masks from two separate vendors. The fiscal year 1991 budget request before the Committee is for $5 million to acquire another 28,700 masks.

Why is the quantity of masks to be procured substantially below last year's budget request?

Answer. The FY91 budget request will not procure any masks. The request was reduced from $40.6 million to $5 million because of the failure of the prime contractor (Scott Aviation) to deliver the waterline drawings required by the two follow-on producers (Mine Safety Appliances and ILC Dover) to begin production. The FY91 budget ($5 million) will be used to cover in-house engineering support and engineering change proposals (ECPs). Currently 120 thousand masks each are under contract to Mine Safety Appliance and ILC Dover. The FY90 funds will be used to exercise an option with Mine Safety Appliance for 180 thousand masks. The funding deobligated as a result of the termination for default of the Scott contract will allow for the acquisition of an additional 60.9 thousand masks from Mine Safety Appliance and 32.8 thousand masks from ILC Dover. With appropriated funding through FY91, the Army will have procured a total of 513.7 thousand masks.

*Question.* At what monthly production rate are both contractors facilitized? Provide for the record the maximum economic, minimum economic and minimum sustaining production rates for both vendors.

Answer. Each contractor is facilitized at 15,000 masks per month (monthly production rate). The production minimum and maximum rates are as follows:

Maximum economic rate: 30,000 per month (each producer)
Minimum economic rate: 5,000 per month (each producer)
Minimum sustaining rate: 5,000 per month (each producer)

*Question.* At what rate will both contractors initially produce the masks? Please include the initial monthly rate as well as the ramp up figures until an economic rate is achieved.

Answer.

| | |
|---|---|
| Mine safety appliances: | |
| 1st month | 2,500 |
| 2nd month | 2,500 |
| 3rd month | 4,000 |
| 4th month | 7,000 |
| 5th and 6th months | 10,100 |
| 7th and 8th months | 12,000 |
| 9th month and continuing | 15,000 |
| ILC Dover: | |
| 1st month | 1,000 |

| | |
|---|---|
| 2nd month | 3,100 |
| 3rd month | 3,000 |
| 4th month | 8,800 |
| 5th month | 10,000 |
| 6th month | 10,000 |
| 7th and 8th months | 12,000 |
| 9th month and continuing | 15,000 |

*Question.* Provide the total inventory objective for the M40/42 masks as well as expected peacetime consumption rates.

Answer. Inventory Objective: M40—1,560,000, M42—201,000, Projected peacetime consumption rate is 4% per year of total inventory.

*Question.* Provide for the record the amount of funding contained in the fiscal year 1992-1997 Five Year Defense Plan to support the attainment of the inventory objective.

Answer. The FY 1992-1997 Five Year Defense Plan is currently being developed and is not available for release.

*Question.* Contract award of the fiscal year 1990 procurement funds is scheduled to occur in the September-November 1990 timeframe. The follow-on 1991 award will not occur until January 1992. Will a production break occur due to this award phasing?

Answer. There will be no break in production.

*Question.* Provide the status of the development effort to implement a drinking capability for the M40/42 mask. Are any further funds required to complete this effort?

Answer. The Army is preparing to test and evaluate the improvements that we made to the Chemical Mask Improved Drinking System (CMIDS). This project has been reviewed by the Army General Counsel to determine if Other Procurement, Army (OPA) funds can be used to complete the research and development efforts on the CMIDS. It's been determined the FY90 Defense Appropriations Act applies to all efforts, and in this instance, OPA can be used to complete test and evaluation actions prior to full procurement of this item. This is the Congressional intent of the specific language. Test and evaluation of the CMIDS is scheduled to begin in late April 1990. No additional funds are required.

### NONSYSTEM TRAINING DEVICES

*Question.* Non-system training devices provide for effective training through the use of combat simulators which bring into play all aspects of a combat situation. These devices enable soldiers to experience a realistic battlefield environment during training exercises. The fiscal year 1991 budget request before the Committee of $101.4 million, funds a variety of simulation programs including among others: the remote targeting system (RETS), multiple integrated laser engagement system (MILES) and the precision gunnery training system (PGTS).

The budget justification for non-system training devices states that "cost and training effectiveness analyses are being performed on proposed [simulation] projects with the result of only these programs demonstrating high potential pay offs being undertaken." Describe to the Committee the criteria utilized in determining if a particular simulation project should proceed.

Answer. Using the Cost and Operational Effectiveness Analysis model, the Army Training and Doctrine Command determines whether particular simulation should proceed by examining a series of criteria including:

a. Does the simulation fulfill TDR requirements?

b. Is the battlefield deficiency satisfied?

c. Are there ammo or OPTEMPO savings?

d. Does the device offer training where we would normally have safety restrictions?

e. Is there a cost avoidance from training on a device rather than on the TO&E item? (Maintenance trainers for signal equipment is a good example).

*Question.* Do systems need to be developed and procured before such assessments can be made?

Answer. Yes, items need to be developed and procured on a limited basis. In some cases, various tests and evaluations are combined to reduce acquisition time. If an item demonstrates training effectiveness/training transfer, a decision making authority would then authorize full scale production.

*Question.* How does the Army prioritize its simulation requirements (i.e. firing capabilities vs. command and control projects with large cost-saving potential, etc.)?

Answer. There is basically a two step process in the prioritization of the requirements; one, a Major Commands prioritization process involving the MACOMS and the needs of the CINCs (USAREUR, FORSCOM, WESTCOM, NGB, OCAR, etc.); and two, the Field Long Range Research Development and Acquisition Program (FLRRDAP), which is a TRADOC and AMC prioritization process for all Research Development and Acquisition (RDA) programs (weapon systems devices and Non System Training Devices (NSTD)). The fundamental prioritization principles for both processes are: priority to first to fight (AC&RC); retention or enhancement of essential capabilities; long term leap ahead capability instead of interim solutions; modernize the force by increments of one third at a time; protect systems and non-system training devices that offer decided savings in structure, training and O&S costs; and recognize warfighting CINCs Battle Focus. In the FLRRDAP, NSTD items are grouped by battlefield functional mission area (i.e. Close Combat Light, Close Combat Heavy, Fire Support, Command and Control, Combat Support, Combat Service Support). The capability and warfighting value of these NSTD grouped items compete in the prioritization process with the weapon systems packages in terms of their contributions to the functional mission area.

*Question.* As the use of combat simulators becomes more prevalent, in what area of the Army budget would the Committee expect to see training cost savings and avoidances?

Answer. As combat simulators become more prevalent the cost savings and cost avoidances should appear in the P2 Mission account, P8 Training account, and the Procurement Army Ammunition account. As an example the Unit Conduct of Fire Trainer (UCOFT) simulation for the Abrams tank resulted in a 25% round savings in tank ammunition per tank, per year. There are several NSTD items to be evaluated in the next two years for potential

Ammo and OPTEMPO savings. The most promising of these systems are the Tank Weapons Gunnery Simulator System/Precision Gunnery System (TWGSS/PGS) for the Abrams/Bradley systems for ammo cost savings/avoidance and the Close Combat Tactical Trainer (CCTT) for OPTEMPO cost savings/avoidance.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, APRIL 4, 1990.

# PROCUREMENT OF AMMUNITION, ARMY

## WITNESSES

**MAJOR GENERAL PAUL L. GREENBERG, DEPUTY CHIEF OF STAFF FOR AMMUNITION, UNITED STATES ARMY MATERIEL COMMAND, DEPARTMENT OF THE ARMY**

**MAJOR GENERAL JEROME H. GRANRUD, ASSISTANT DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS, FORCE DEVELOPMENT, DEPARTMENT OF THE ARMY**

## INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning, the Committee considers the $1,424,400,000 budget for Procurement of Ammunition, Army for fiscal year 1991. The overall funding level is about 35 percent below the appropriation for fiscal year 1990 and will require the closure of ammunition plants and the scaling back of ammunition production.

The principal witness for this hearing is Major General Paul L. Greenberg, Deputy Chief of Staff for Ammunition, Army Materiel Command. He is accompanied by Major General Jerome Granrud, Assistant Deputy Chief of Staff for Operations and Plans. General Greenberg, you are a familiar face before the Committee and we welcome you back. General Granrud, we also welcome your testimony. General Greenberg, your entire statement will be made a part of the record. If you will briefly summarize it, we will proceed to questions.

This hearing is being held in closed session because of the classified nature of the material to be discussed.

## SUMMARY STATEMENT OF GENERAL GREENBERG

General GREENBERG. Mr. Chairman and members of the subcommittee, it is a pleasure for me to again appear before this commitee to report on the amended fiscal year 1991 procurement of ammunition, Army budget. In the past, the ammunition community has had a relatively simple goal—produce quality ammunition as quickly, safely, and economically as possible. Success was measured by our ability to meet a growing need, driven by an increasing threat of war.

### CHANGES IN EASTERN EUROPE

Now, the recent and dramatic changes in Eastern Europe have complicated our job substantially. As you know, the Army is in transition—for the first time in many decades, we now project for the European theater a decreasing threat of a protracted large-scale land war and an attendant increase in warning time before substantial combat could commence. By contrast, the more likely scenario is a low intensity regional conflict of limited scope and duration.

It is this changing threat projection in an environment of ever decreasing financial resources, against which our Army is being restructured and modernized. As the operational strategists assess the world situation and adjust their operation plans to meet it, they project changes in both mix or munitions and quantities required—in most cases less ammunition will be required. This will mandate both adjustments in the size and composition of our stockpile and the industrial base. Specifically, we must selectively target our production base investment in order to obtain the greatest improvement in versatility and responsiveness.

### AMMUNITION REQUIREMENTS

As the Army assesses its force structure and mix to accommodate perceived threat changes within limited financial resources, ammunition requirements are adjusted accordingly. We anticipate first, a reduction in troop levels, which will reduce training ammunition consumption. Second, fewer firing platforms will be in the force. Therefore, the amount of ammunition to be stockpile and maintained should be less, thereby saving critically short operations and maintenance dollars. Third, increased projected warning time will enhance our ability to surge a more capable, responsive industrial base plant enabling further reductions to prestocked ammunition reserves.

### FISCAL YEAR 1991 BUDGET REQUEST

The $1.4 billion amended fiscal year budget request provides limited peacetime buys of essential, more lethal modern ammunition, and modest increases to the war reserve stockpile; fulfills our commitment to a trained and ready Army by supporting, one, training one hundred percent; two, our armament enhancement initiative; and lastly, improves the safety and environmental condition and maintenance of the production base. Marginally effective systems have been eliminated from our request and only those service rounds used for training that are absolutely essential to sustainability of key warfighting systems have been replaced.

Mr. **Murtha**. Mr. Hefner will preside for the remainder of the hearing.

We appreciate your cooperation, your expertise, and the outstanding help you gave us on one of the most difficult issues that we faced last year. The Committee appreciates your tremendous work in this area. You have been very helpful to the Committee and also to the country.

General **Greenberg**. Thank you, sir.

Mr. **Hefner**. Welcome, gentlemen.

Mr. **McDade**. I just wanted to follow on with the chairman's accolade to you, General. We know this is probably your last trip wearing this hat before this Commitee. The rumor mill has it that you are the only person the Army could find to justify this budget with all the cuts in it.

We are grateful for the tremendous job you have done in a declining budget to try to keep the bins filled and the ammunition out there for the troops.

We wish you success and happiness in your new assignment.

We thank you, General.

Mr. Hefner. General, please continue with your statement.

General Greenberg. We have changed the way the Ammunition Initial Issue Quantity, AIIQ, is calculated. You will recall that the AIIQ is that amount of ammunition issued with each weapon system to provide an initial combat capability. For example, the AIIQ for a tank is those rounds that are stored in its bustle plus that which can be moved on organic transportation. They are stored in corps storage areas. It was determined that the amount cost, and warfighting potential of this ammunition has grown to the point where we believe it must be part of our sustainability calculations.

In past years, we have accepted higher levels of risk associated with accelerated fielding of new programs to counter a growing threat. As the threat moderated, we consider it more prudent and efficient to mature a new product before we initiate production or go into mass production. we have, therefore, slowed or temporarily halted prior year production programs of several new items while "fact of life" developmental or production problems were investigated and fixed.

The fiscal year 1991 amended budget quantities have been adjusted to ensure timely producibility. The result of these actions is an austere, but adequately balanced budget that will provide the right mix of ammunition to meet the needs of our Army in the field. Of the total fiscal year 1991 request, $1.2 billion is for the procurement of ammunition end items. The largest portion, approximately 34 percent, is for our first priority—tank ammunition.

With these funds, we will continue to field the new 105 millimeter and 120 millimeter kinetic energy rounds as a key part of our Armament Enhancement Initiative (AEI). We will also make a substantial investment in continued procurement of the new 105 millimeter HERA and 155 millimeter baseburn artillery projectiles. These rounds provide both light and heavy artillery a decisively longer reach. In the small and medium caliber area, we build war reserves of the new 25 millimeter kinetic energy round, enabling the Bradley fighting vehicle to defeat more armor at longer range.

Finally, we continue fielding the volcano mine system that rapidly lays anti-personnel and anti-tank mine barriers from vehicle dispensers. This $1.2 billion can also be described in terms of the way ammunition is used. We ask for approximately $689 million for war reserve stocks. Training requirements are satisfied in the budget request by $412 million and also by drawdown of on-hand inventories. These are either older rounds no longer preferred for combat use, those that meet or exceed the Army acquisition objective, or rounds that are out of balance with the rest of the stockpile. In this manner, we exercise smart management of the ammunition inventory. The remaining $64 million provides funds for unique ammunition requirements and to support production processes. Ammunition sustainability is a continuing concern as we assess the changing capabilities of our potential adversaries. To that end, we invest our ammunition end item dollars to provide the greatest capability for our weapon systems on the battlefield. This requires prudent stockpile management, balanced with a viable production base that can be quickly surged during emergencies. This balance will become even more critical as we reduce the funding dedicated to the maintenance and handling of the ammunition stockpile.

### PRODUCTION BASE

Now I would like to mention the production base. Currently we find ourselves with a base that is out of balance with projected requirements. Specifically, much of our government-owned base is neither equipped nor configured to meet future requirements. Left uncorrected, the result will be increasingly inefficient production which is already increasing unit costs and reducing the amount of ammunition reaching the field. To counter this trend, we envision that over the next few years, a smaller, more flexible "core" ammunition base able to produce a greater variety of future ammunition items. This active core will be backed up by a properly laid away, responsive inactive base. The projected increase in warning time will allow activation of this base in time to meet mobilization requirements. Our challenge is to make the necessary transition from the current base to a core base as smoothly as time and funds will allow. If we move too fast, we endanger our ability to deter and, if necessary, fight a war and win. If we go too slow, we waste scarce resources by maintaining a base that is too large to efficiently satisfy peacetime needs.

### SUMMARY

In closing, I want to emphasize that we believe we are managing our ammunition program in an effective, balanced and affordable way. The fiscal year 1991 amended budget we have submitted begins execution of a plan that responds to meet the challenges of declining resources, the change in the global threat, and the necessity to streamline the base. The decisions reflected in this budget were based on our commitment to provide the soldier the highest quality ammunition available from a strong industrial base capable of mobilizing quickly to support the smaller, more versatile, deployable, lethal army of the future.

Mr. Chairman, I would like to thank you for your time and your continued support of the ammunition program.

I will be happy to take your questions.

[The statement of General Greenberg follows:]

12.1

STATEMENT BY
MAJOR GENERAL PAUL L. GREENBERG
DEPUTY CHIEF OF STAFF OF AMMUNITION
ARMY AMMUNITION
4 APRIL 1990

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

IT IS A PLEASURE FOR ME TO APPEAR BEFORE THIS SUBCOMMITTEE TODAY TO DISCUSS THE ARMY'S AMMUNITION PROCUREMENT PROGRAM.

IN THE PAST THE AMMUNITION COMMUNITY HAS HAD A RELATIVELY SIMPLE JOB ... PRODUCE QUALITY AMMUNITION AS FAST, SAFELY AND ECONOMICALLY AS POSSIBLE. SUCCESS WAS MEASURED BY OUR ABILITY TO MEET A GROWING NEED DRIVEN BY AN INCREASING THREAT OF WAR. PROJECTION OF LITTLE OR NO WARNING TIME REQUIRED THAT WE BUILD SUBSTANTIAL, EXPENSIVE STOCKPILES OF AMMUNITION AND AT THE SAME TIME MAINTAIN A WARM PRODUCTION BASE THAT WE COULD IMMEDIATELY SURGE TO PROVIDE FOR OUR INITIAL REQUIREMENTS. PROGRESS WAS LIMITED ONLY BY THE FUNDS AVAILABLE TO PRODUCE THE AMMUNITION NECESSARY TO TRAIN AND SUSTAIN COMBAT FORCES. WITH MUCH HARD WORK AND YOUR SUPPORT, WE BROUGHT THE DEMAND FOR OUR PRODUCT AND OUR CAPABILITY TO MEET IT INTO REASONABLE BALANCE.

THE RECENT AND DRAMATIC CHANGES IN EASTERN EUROPE HAVE COMPLICATED OUR JOB SUBSTANTIALLY. FOR THE FIRST TIME IN MANY DECADES WE NOW PROJECT A DECREASING THREAT OF PROTRACTED LARGE SCALE LAND WAR AND AN ATTENDANT INCREASE IN WARNING TIME BEFORE SUBSTANTIAL COMBAT COULD COMMENCE. BY CONTRAST THE MORE LIKELY SCENARIO IS A LOW INTENSITY CONFLICT OF LIMITED SCOPE AND DURATION. AS OPERATIONAL STRATEGISTS ASSESS THE CHANGE AND ADJUST THE SCENARIOS TO MEET IT, THEY PROJECT CHANGES IN BOTH MIX OF MUNITIONS AND QUANTITIES REQUIRED - IN MOST CASES LESS. THIS EQUATES TO MORE COMBAT CAPABILITY FROM A SMALLER STOCKPILE. FURTHER, AS THE ARMY AND THE SERVICES SCALE BACK THEIR FORCES, THEY PROJECT FUTURE REDUCTIONS IN TRAINING AMMUNITION REQUIREMENTS. UNDERLYING ALL THE PREDICTIONS OF REDUCED FUTURE MUNITION REQUIREMENTS IS THE VERY REAL NEED TO BE ABLE TO RESPOND TO CHANGING WORLD EVENTS, AND QUICKLY SUPPLEMENT STOCKPILES.

FURTHER COMPLICATING OUR JOB ARE THE TECHNOLOGICAL ADVANCES IN BOTH U.S. WEAPON SYSTEMS AND THOSE OF OUR POTENTIAL ENEMIES. AMMUNITION NEEDS OF THE FUTURE WILL BE CHARACTERIZED BY TECHNICALLY SOPHISTICATED, MORE EXPENSIVE ROUNDS WITH PINPOINT ACCURACY AND DEVASTATING EFFECT ON THE TARGET. MORE OF THE COMPONENTS OF THESE ROUNDS WILL BE MADE AND ASSEMBLED IN ELECTRONIC LABORATORIES, RATHER THAN IN THE HEAVILY INDUSTRIALIZED AMMUNITION PLANTS OF TODAY. THE COST OF THESE ROUNDS AND THE SPEED WITH WHICH TECHNOLOGY OFTEN REDUCES THEIR EFFECTIVENESS CAUSES US TO QUESTION THE WISDOM AND AFFORDABILITY OF CREATING AND MAINTAINING A LARGE STOCKPILE. RATHER, THE PROPER BALANCE OF CONTROLLED STOCKPILE QUANTITIES ALONG WITH INCREASED WARNING TIME WILL ENHANCE OUR ABILITY TO ACTIVATE A CAPABLE, RESPONSIVE PRODUCTION BASE. THIS IN OUR JUDGEMENT, IS THE MOST EFFECTIVE WAY TO PLAN FOR THE SUPPORT OF PROJECTED WARTIME NEEDS.

SO WE FIND OURSELVES WITH A CURRENT AMMUNITION PRODUCTION BASE THAT IS OUT OF BALANCE WITH PROJECTED NEEDS. SPECIFICALLY, MUCH OF OUR GOVERNMENT OWNED BASE WILL SOON BE NEITHER EQUIPPED NOR CONFIGURED TO MEET FUTURE REQUIREMENTS. LEFT UNCORRECTED THE RESULT WILL BE INCREASED INEFFICIENT PRODUCTION WHICH IS ALREADY DRIVING UP UNIT COSTS. OUR CHALLENGE IS TO ADJUST THE BASE TO MEET OUR NEEDS AS GENTLY AS TIME AND FUNDS WILL ALLOW. IF WE MOVE TOO FAST WE ENDANGER OUR ABILITY TO DETER AND IF NECESSARY FIGHT A WAR OF TODAY. IF WE GO TOO SLOW, WE WASTE SCARCE RESOURCES BY MAINTAINING A BASE THAT IS TOO LARGE TO EFFICIENTLY SATISFY BOTH PEACETIME AND WARTIME NEEDS.

TODAY I PRESENT AN ARMY AMMUNITION BUDGET WHICH BEGINS THE TRANSITION OF OUR PRODUCTION BASE TO MEET PROJECTED NEEDS. IT IS CHARACTERIZED BY REDUCED FUNDING FOR HARDWARE, DETERMINED BY THE DECLINING REQUIREMENTS OF A SMALLER FORCE AND THE CHANGING CHARACTER OF THE THREAT. CONVERSELY, THERE IS A RECONFIGURATION IN THE FUNDING FOR THE PRODUCTION BASE TO SUPPORT THE TRANSITION TO A MORE VERSATILE, RESPONSIVE CORE OF GOVERNMENT-OWNED AMMUNITION PLANTS AND PROTECT AND LAYAWAY THOSE PORTIONS OF THE PRODUCTION BASE REQUIRED FOR FUTURE MOBILIZATION.

THE FISCAL YEAR 1991 AMENDED BUDGET REQUEST IS $1,424.4 MILLION. IT CONSISTS OF $1165.3 MILLION FOR THE PROCUREMENT OF AMMUNITION END ITEMS AND $259.1 MILLION TO SUPPORT THE AMMUNITION PRODUCTION BASE. COMPARISON OF THE AMENDED FISCAL YEAR 1991 REQUEST WITH PRIOR YEAR APPROPRIATIONS IS AS FOLLOWS:

12.3.

| APPROPRIATED | APPROPRIATED | AMENDED |
|---|---|---|
| FY 1989 | FY 1990 | FY 1991 |
| $2020.3 | $2011.2 | $1424.4 |

ALTHOUGH $586.8 MILLION LOWER THAN OUR FISCAL YEAR 1990 APPROPRIATION, WE FEEL OUR AMENDED FISCAL YEAR 1991 REQUEST IS BOTH EQUITABLE AND BALANCED WITHIN THE CONTEXT OF THE RAPIDLY CHANGING GLOBAL SECURITY ENVIRONMENT AND THE EMERGING NATURE OF THE THREAT.

AMMUNITION END ITEMS:

AMMUNITION END ITEM ACQUISITION PROVIDES FOR PEACETIME BUYS OF ESSENTIAL MODERN AMMUNITION, MODEST INCREASES TO THE WAR RESERVE STOCKPILE, AND 100 PERCENT SUPPORT OF TRAINING. THE END ITEM REQUEST IS DIVIDED INTO THE FOLLOWING MAJOR ELEMENTS:

(DOLLARS IN MILLIONS)

| MAJOR ELEMENT | FY 1991 |
|---|---|
| WAR RESERVE | $ 688.9 |
| TRAINING | 412.1 |
| NON-HARDWARE | 64.3 |
| TOTAL | $1,165.3 |

59 PERCENT OF THE 1991 AMENDED BUDGET FUNDS THE WAR RESERVE ACCOUNTS WHILE 35 PERCENT SUPPORTS TRAINING. THE NON-HARDWARE REQUEST FUNDS PROCUREMENT OF AMMUNITION COMPONENTS FOR MAINTENANCE, AND INITIAL AND REPLENISHMENT SPARES.

CATEGORIES OF END ITEMS IN OUR REQUEST ARE AS FOLLOWS:

(DOLLARS IN MILLIONS)

| CATEGORY | AMENDED FY 1991 |
|---|---|
| SMALL ARMS | $ 171.1 |
| MORTARS | 4.0 |
| TANK | 393.9 |
| ARTY/FUZES | 252.8 |
| MINES/COUNTERMINES | 81.7 |
| ROCKETS | 60.1 |
| OTHER | 121.1 |
| SPECIAL | 80.6 |
| TOTAL | $1,165.3 |

NOW I WOULD LIKE TO ADDRESS EACH CATEGORY SEPARATELY.

SMALL ARMS:

THE AMENDED FISCAL YEAR 1991 REQUEST INCLUDES $171.1 MILLION FOR SMALL ARMS. OF THIS AMOUNT $52.0 MILLION IS FOR 5.56MM M16A2 RIFLE AMMUNITION TO BUILD WAR RESERVE STOCK AND SUPPORT ANNUAL PEACETIME TRAINING REQUIREMENTS. ANOTHER $89.6 MILLION IS REQUESTED FOR 25MM AMMUNITION FOR USE IN THE M242 AUTOMATIC GUN MOUNTED ON THE M2/M3 BRADLEY FIGHTING VEHICLE SYSTEM.

MORTARS:

THE BUDGET REQUEST FUNDS THE 60MM SMOKE ROUND, FOR USE IN THE LIGHTWEIGHT COMPANY MORTAR SYSTEM, IN SUPPORT OF THE ARMY'S LIGHT FORCES. OVERALL, THE FISCAL YEAR 1991 PROCUREMENT INCREASES THE WAR RESERVE STOCKPILE.

12.3

### TANK:

THE REQUEST INCLUDES FUNDING FOR 105MM & 120MM TANK TRAINING AMMUNITION FOR ANNUAL TANK GUNNERY TRAINING ON THE M60, M1 AND M1A1 SERIES TANKS, AND PROVIDES THE FIRST FULL RATE PRODUCTION FOR THE XM900E1 KINETIC ENERGY ROUND, PROVIDING IMPROVED LETHALITY FOR THE 105MM TANK FLEET. THE REMAINDER OF THE REQUEST IS FOR ENHANCED AMMUNITION TO SUPPORT M1A1 TANK FIELDINGS.

### ARTILLERY/FUZES:

THE REQUEST IS PRIMARILY FOR MODERNIZATION OF WAR RESERVE STOCKS OF 105MM AND 155MM ARTILLERY AMMUNITION. FUNDING REQUESTED FOR THE M864, 155MM BASEBURNER PROJECTILE ACCOUNTS FOR $118.6 MILLION OR 47 PERCENT OF THE TOTAL ARTILLERY REQUEST. THIS IMPROVED CONVENTIONAL MUNITION (ICM) PROJECTILE IS A DUAL PURPOSE ANTI-ARMOR/ANTI-PERSONNEL ROUND AND OFFERS AN EXTENDED RANGE OF 60 PERCENT OVER ITS PREDECESSOR.

THE REMAINDER OF THE REQUEST FOR ARTILLERY AMMUNITION FUNDING INCLUDES THE 155MM ARTILLERY DELIVERED MINE PROJECTILE; 105MM HIGH EXPLOSIVE ROCKET ASSISTED PROJECTILE; AND FUZES BALANCED TO PROJECTILE QUANTITIES.

### MINES/COUNTERMINES

THE REQUESTED FUNDING OF $81.7 MILLION SUPPORTS FUNDING TO MEET WAR RESERVE OBJECTIVES. INCLUDED IS THE NEW VOLCANO MINE SYSTEM, A HELICOPTER OR GROUND DISPENSED MINE SYSTEM WHICH CONTAINS ANTI-PERSONNEL AND ANTI-TANK MINES AND IS THE CENTER PIECE OF THE ARMY MINE PROGRAM. ALSO INCLUDED ARE PRACTICE MINES TO SUPPORT TRAINING WITH THE VOLCANO DISPENSING SYSTEM; AND M68A2 INERT LINE CHARGE (MICLIC) TO PROVIDE REALISTIC TRAINING IN MINEFIELD BREACHING.

### ROCKETS:

THE REQUEST INCLUDES FUNDING TO SUPPORT WAR RESERVE AND TRAINING REQUIREMENTS FOR THE HYDRA 70 FAMILY OF ROCKETS. THE HYDRA 70 PROVIDES BOTH ATTACK AND SELF-DEFENSE CAPABILITIES FOR APACHE AND MODERNIZED COBRA HELICOPTERS AGAINST PERSONNEL AND MATERIEL. THE ILLUMINATION ROCKET SUPPORTS ANNUAL PEACETIME TRAINING AND BUILDS WAR RESERVES. THE REQUEST ALSO INCLUDES FUNDING FOR THE LIGHTWEIGHT MULTI-PURPOSE WEAPON SYSTEM (AT-4), A SHOULDER FIRED TACTICAL MUNITION DESIGNED FOR MULTIPLE ROLES AGAINST MATERIEL AND LIGHTLY ARMORED VEHICLES.

### OTHER & SPECIAL:

THESE TWO CATEGORIES CONSIST OF THE REMAINING ITEMS IN THE BUDGET REQUEST. THESE INCLUDE NITROGUANIDINE, A COMPOUND USED TO MANUFACTURE PROPELLANT FOR ARTILLERY. THE REQUEST ALSO INCLUDES FUNDS FOR UNIQUE EQUIPMENT TO SUPPORT AMMUNITION PRODUCTION/DEPOT OPERATIONS, SPARES AND REPAIR PARTS, AND CONTINUAL SUPPORT FOR NUCLEAR AND BINARY CHEMICAL ARTILLERY ROUNDS.

### AMMUNITION PRODUCTION BASE:

THE FUTURE AMMUNITION BASE WILL BE SMALLER BUT MORE FLEXIBLE AND ABLE TO PRODUCE A GREATER VARIETY OF THE LETHAL PORTIONS OF THE AMMUNITION PROGRAM. FEWER GOVERNMENT-OWNED PLANTS WILL REMAIN ACTIVE. MISSISSIPPI ARMY AMMUNITION PLANT, MANUFACTURER OF 155MM M483A1 PROJECTILES, WILL CEASE PRODUCTION IN THE APRIL THROUGH JUNE TIMEFRAME AND WILL BE LAID AWAY FOR FUTURE SURGE AND MOBILIZATION NEEDS. A NUMBER OF ADDITIONAL CANDIDATE AMMUNITION PLANTS HAVE BEEN ANNOUNCED FOR CLOSURE DURING THE NEXT FOUR YEARS. THESE ACTIONS ARE ESSENTIAL IF WE ARE TO PRODUCE FUTURE REQUIREMENTS IN THE MOST EFFICIENT, COST EFFECTIVE WAY. TOUGH MANAGEMENT DECISIONS ARE REQUIRED WHICH WILL NECESSITATE THE COOPERATION, UNDERSTANDING AND SUPPORT OF ALL CONCERNED.

12.4

LET US NOW SUMMARIZE THE AMMUNITION PRODUCTION BASE REQUEST:

(DOLLARS IN MILLIONS)

| | FY 1991 |
|---|---|
| PROVISION OF INDUSTRIAL FACILITIES | $ 134.7 |
| LAYAWAY OF INDUSTRIAL FACILITIES | 40.5 |
| COMPONENTS FOR PROVEOUT | 12.1 |
| PROVING GROUND MODERNIZATION | 4.0 |
| MAINTENANCE OF INACTIVE BASE | 67.8 |
| TOTAL | $ 259.1 |

THE PROVISION OF INDUSTRIAL FACILITIES REQUEST OF $134.7 MILLION PROVIDES FOR THE REHABILITATION, REPLACEMENT, MODERNIZATION, AND CORRECTION OF SAFETY AND ENVIRONMENTAL DEFICIENCIES AT VARIOUS ARMY AMMUNITION PLANTS. ALSO INCLUDED IN THE FISCAL YEAR 1991 REQUEST ARE FUNDS FOR THE NECESSARY PRODUCTION SUPPORT AND EQUIPMENT REPLACEMENT FOR PLANTS IN ACTIVE PRODUCTION.

THE $40.5 MILLION REQUEST FOR LAYAWAY OF INDUSTRIAL FACILITIES IS FOR THE PROTECTION AND PRESERVATION OF EQUIPMENT AND FACILITIES NO LONGER REQUIRED FOR ACTIVE PRODUCTION, WHICH MUST BE RETAINED FOR FUTURE PEACETIME OR MOBILIZATION PRODUCTION NEEDS. INCLUDED ARE FUNDS TO COMPLETE THE LAYAWAY OF MISSISSIPPI ARMY AMMUNITION PLANT AND LINES AT VARIOUS AMMUNITION FACILITIES WHERE PRODUCTION IS PROJECTED TO END.

THE COMPONENTS FOR LINE PROVEOUT PROVIDE FOR PROVEOUT AND ACCEPTANCE OF PRIOR YEAR MODERNIZATION, EXPANSION AND INITIAL PRODUCTION FACILITIES. THE FUNDS ARE USED TO ASSURE THAT THE FACILITY IS CAPABLE OF PRODUCING AN ACCEPTABLE PRODUCT, MANUFACTURERS WARRANTIES ARE MET, AND THE FACILITY IS CAPABLE OF PRODUCING AT THE DESIGNED RATE.

IN FISCAL YEAR 1991 $4.0 MILLION IS REQUESTED FOR PROVING GROUND MODERNIZATION. THIS PROGRAM WILL MODERNIZE AND UPGRADE EXISTING TEST INSTRUMENTATION TO CONDUCT PRODUCTION ACCEPTANCE TESTING OF ARMY AMMUNITION COMPONENTS AT YUMA PROVING GROUND. SOME FUNDING WILL STILL BE REQUIRED AT JEFFERSON PROVING GROUND DURING THE TRANSITION PERIOD.

THE FINAL ELEMENT IN THE PROGRAM IS $67.8 MILLION FOR THE MAINTENANCE OF THE INACTIVE AMMUNITION INDUSTRIAL BASE. THIS IS A NEW LINE THAT WAS FINANCED IN PRIOR YEARS THROUGH THE OPERATION AND MAINTENANCE, ARMY APPROPRIATION. THE FUNDS PROVIDE FOR THE MAINTENANCE OF LAID AWAY PORTIONS OF ACTIVE PLANTS, AND SUPPORT MAINTENANCE, PROTECTION, AND ESSENTIAL REPAIR OF GOVERNMENT-OWNED PLANT EQUIPMENT PACKAGES. THESE PLANT EQUIPMENT PACKAGES ARE MAINTAINED IN ANTICIPATION OF FUTURE PRODUCTION AND MOBILIZATION REQUIREMENTS FOR AMMUNITION.

TO SUM UP, WE ARE MAKING A DILIGENT EFFORT TO MANAGE OUR AMMUNITION PROGRAMS IN A BALANCED AND AFFORDABLE WAY IN ORDER TO PROVIDE OUR SOLDIERS WITH THE QUALITY AMMUNITION THEY NEED TO PREVAIL IN CASE OF WAR. WE REALIZE THAT THE GLOBAL THREAT IS CHANGING RAPIDLY, THAT FISCAL RESOURCES ARE DECLINING AND THAT THE AMMUNITION BASE IS FACING A RESTRUCTURING CHALLENGE. WE MUST ALSO BE MINDFUL THAT WE REPRESENT A BIG BUSINESS THAT EMPLOYS THOUSANDS OF OUR CITIZENS ACROSS THE COUNTRY. THEREFORE WE MUST ENSURE THAT THE DECISIONS WE MAKE ARE THE CORRECT ONES AND THAT THEY CAREFULLY CONSIDER THE FAR REACHING IMPACT THEY WILL HAVE NOW AND IN THE YEARS AHEAD. FINALLY WE MUST ENSURE THAT OUR ACTIONS STRENGTHEN AN INDUSTRIAL BASE CAPABLE OF MOBILIZING QUICKLY IF THE CHALLENGE IS PRESENTED. ACCORDINGLY, WE NEED THE CONTINUING STRONG SUPPORT OF CONGRESS MORE THAN EVER TO ENSURE THAT WE MAINTAIN AN AMMUNITION STRUCTURE NEEDED BY THE VERSATILE, DEPLOYABLE, LETHAL ARMY OF THE FUTURE.

Mr. **Hefner**. General Granrud.

## SUMMARY STATEMENT OF GENERAL GRANRUD

General **Granrud**. Good morning, Mr. Chairman and members of the committee. I want to take two seconds to introduce myself and to explain why I am here. I am the Deputy Chief of Staff Operations and Plans, Force Development in the Department level and I have responsibility for the force structure and the requirements for the Army, and as such, I determine all of the ammunition as well as equipment requirements and manage and assess the research development acquisition dollars, and then prioritize those dollars, so I pass requirements to Paul.

So I wanted to accompany him because I know that the question of requirements and the generation of those things has become part of the question, so I wanted to be here to help him talk through that and I will just comment where appropriate.

Mr. **Hefner**. Thank you, sir.

[The biographical sketch of General Granrud follows:]

## BIOGRAPHY

## JEROME H. GRANRUD

## MAJOR GENERAL, UNITED STATES ARMY

Major General Granrud is the Assistant Deputy Chief of Staff for Operations and Plans, Force Development, Department of the Army, Washington, D.C. In that capacity, General Granrud is responsible for materiel requirements and development of the total Army force structure, and for integrating modernization changes into the force to deal with the current and projected threat.

General Granrud was born in Minot, North Dakota, on 10 April 1937. He is a graduate of the University of Missouri with a Bachelor of Arts degree in Language studies. He entered the US Army in August 1960, serving primarily in Air Defense and Field Artillery during the early part of his career. His professional training and development include attendance at the Command and General Staff College and the Army War College.

General Granrud has had a variety of assignments in the past 10 years related to preparing the Army to fight on the future battlefield. Key assignments include Director of Force Requirements (Weapons Systems), Office of the Deputy Chief of Staff for Operations and Plans, Washington, DC; Director, Command, Control, Communications and Intelligence, United States Army Combat Development Activity, Fort Leavenworth, Kansas; Associate Director, National Strategy Studies, Army War College, Carlisle Barracks, Pennsylvania.

A variety of command and staff duties with troops have provided a broad base of experience to execute the Army's Airland Battle Doctrine with today's fully modernized forces. His most recent troop assignment was Assistant Division Commander of the 2d Infantry Division, Eighth Army, Korea. Previous troop assignments include Commander, 210th FA Brigade, VII Corps, Europe; Commander, 6th Battalion, 10th FA, 72d FA Group, VII Corps, Europe; Operations Officer, 82d Airborne Division Artillery, Fort Bragg, North Carolina. He also served twice in Vietnam as an adviser to the Vietnamese Army and with the 101st Airborne Division.

General Granrud's decorations include the Legion of Merit (with three Oak Leaf Clusters); the Bronze Star Medal with V Device (with five Oak Leaf Clusters); the Meritorious Service Medal (with Oak Leaf Cluster); the Air Medal, and the Army Commendation Medal. He also wears the Combat Infantryman Badge and Senior Parachutist Badge.

General Granrud is married to the former Elizabeth Fancher of Spokane, Washington. They have a son, Erik, and a daughter, Britta.

## OVERALL AMMUNITION FUNDING

Mr. HEFNER. General Greenberg, you have testified that the overall funding level for ammunition procurement should be at about $2 billion in order to prevent erosion of our ammunition supply and production base. I note that even as recently as the amended fiscal year 1989 budget, your fiscal year 1991 ammunition budget was projected to be $2.6 billion. What is the impact on days of supply, training, and our production base of an ammunition procurement budget of only $1.4 billion?

I know in the past we have had situations in these tight budgets where you would recommend that the days of training and supply would be cut back to get to the budget number, but this is almost a 50 percent reduction.

How are the changing world conditions affecting the ammunition requirements?

General GREENBERG. Let me see if I can answer in context of the way we built the program. When we talked about $2 billion, we were talking about it in the context of how we viewed the world back about two-plus years ago when the fiscal year 1989–90 budget was put together. If you recall then, we were concerned about a major war in Europe.

We were talking about large numbers of divisions backing up a large force in Europe and a very extended war with almost no warning time. When we put the fiscal year 1991 budget together back about 16 months ago, we began with that premise. The OSD guidance at that time was to buy up to ——— worth of supply. As we moved through the budget, the world changed. The remarkable events in Europe occurred and we began seeing new scenarios. We began seeing new possibilities.

The view of the enemy was decidedly different, so that when we finally got to the final budget numbers in fiscal year 1991, not knowing what the actual quantitative requirements were, we cut back on the number of days of supply that we needed, knowing full well that once we could interpret the requirements from scenarios that they would come down. Since that time, we have done that and General Granrud will talk more about that later, but we have seen that happening, seen the requirements coming down dramatically, so the 1991 budget we believe was the pivot point which takes us out of that large land mass war environment that we were in before to a much different environment of tomorrow.

### AMMUNITION SHORTFALL

Mr. HEFNER. What are the most significant shortfalls, if any, in the fiscal year 1991 ammunition procurement budget?

General GREENBERG. Sir, usually when I come over here, I give you a view of the world that says if I had my druthers, I would like more money for ammunition. This year is very unique for a couple of reasons. First, as I mentioned, the requirements are coming down. By looking at the amount of ammunition that is in the hands of the soldiers, we now understand that our sustainability is much higher. We have approximately ——— of sustainability worldwide for most of our modern munitions. I have some production problems that have occurred over the last couple of months that have prevented me from going into full production with some of the key items that the CINCs want, such as the M864 Baseburner, Volcano and the M913 HERA.

What I would say, in summary, is that I am not sure how I could use additional dollars to satisfy CINC requirements. Any additional dollars that I would be given would not be buying the items that they want, because I simply cannot build any of the new items any faster because of production start problems. So I have as much as I would use within the production timeframes that are allowed me.

Mr. **Hefner**. To what extent, if any, are war reserve munitions being drawn down in 1990 and 1991 in order to support training?

General **Greenberg**. In 1990, we drew down about $396 million worth of stockpile for training. In 1991, that number is going to go up to $475 million. Keep in mind that the vast majority of that ammunition is either older items that I want to purge out of the stockpile, such as the older 60 and 81 millimeter rounds, or items that meet or exceed our AAO, such as the M107 high explosive rounds. That is a very good training round for us because it is relatively inexpensive and if I have to come back and build more quantities of that later on, it is an inexpensive round to build for training. That, coupled with the M804 155mm training round, does very well in Europe; for example, the M804 for the shorter ranges and the M107 for the longer ones.

We have a number of rounds that we have had over time that are standard training ammunition and we would use to get down below the authorized training pipeline. If we go beyond that, we are accused of buying beyond our requirements. We think this is prudent stockpile management.

Mr. **Hefner**. Mr. McDade?

## 120 Millimeter Mortar Ammunition

Mr. **McDade**. Thank you, Mr. Chairman.

General, I would like to talk about the 120mm mortar ammunition initially and then go to other areas.

I understand that after some delays last year, the NDI ammunition has now cleared all the wickets and was type classified two weeks ago.

General **Greenberg**. That is correct.

Mr. **McDade**. So with type classification, I assume the path is now clear to go to production. Have any production contracts been let?

General **Greenberg**. The NDI ammunition production contracts have not been let yet, but I think they will very quickly.

Mr. **McDade**. Any idea of the time frame, General?

General **Greenberg**. Yes, sir; March of 1991.

Mr. **McDade**. I think you are talking about enhanced ammo. We are talking about NDI—limited quantity of the NDI—

General **Granrud**. For the 63 mortars that we are buying.

General **Greenberg**. I will provide that for the record.

[The information follows:]

Line items under Option 1 of contract DAAA-21-88-0052 were awarded on March 27, 1990, for production of the towed weapon systems, technical data package, and license. Other line items of Option 1 to procure NDI ammunition (high explosive and illumination) were awarded April 13, 1990. The option for the smoke round will be awarded as soon as we establish a budget line for the program. The close date for the award of that option has been extended by mutual consent of the contractor and the government to September 30, 1990.

Mr. McDade. We want to know the dollar award quantities by ammunition type.

I understand that the NDI buy is solely to support initial fielding and operational testing; is that correct?

General Granrud. That is right. The mortar itself, of course, was originally bought to go to the Ninth Infantry Division at Fort Lewis.

Mr. McDade. It is the Army's intention to go as quickly as you can.

We have had conversations among staff that the Army has informally said that they may seek a reprogramming in order to support the purchase of the NDI rounds.

We thought we supplied the dollars to do this in prior years.

Why do you need a reprogramming?

Will you check that out and get a response to me?

[The information follows:]

Funds for acquisition of smoke rounds were included in the budget line for illumination rounds in Fiscal Year 1989. To enable transfer of funds, the appropriate budget line is being established to acquire smoke rounds. Smoke rounds will be procured in accordance with our existing contract (15.0 thousand rounds for $5.7 million ).

Mr. McDade. Our recollection is that we had funded this and, therefore, you should have the source.

I am sure you didn't invade that account and spend it elsewhere.

General Granrud. I am not certain why we needed it as well.

Mr. McDade. We haven't been able to determine which fiscal year funding will be used to execute the NDI ammo contract and we would like you to shed light on that in the record if you need to.

[The information folllows:]

Fiscal year 1989 funds are being used to execute our NDI ammunition procurement.

### ENHANCED 120MM AMMUNITION

Mr. McDade. Now that the NDI ammunition is type classified, we understand both the Army and the contractor feel that the changes made can be readily transferred to the enhanced ammo program and as a result type classification for enhanced ammunition is now expected in that March 1991 time frame that we were referring to.

Is that accurate?

General Greenberg. Yes, sir.

Mr. McDade. If the ammo is type classified by March, you could award a production contract soon thereafter.

What are the Army's plans in that regard for production contract after type classification?

General Greenberg. Sir, we had so many problems associated with—technical problems—associated with this from the outset that we just didn't feel as though we had enough good information to provide a 1991 program for the 120, so we would wait until the 1992 buy in order to begin production.

Mr. McDade. Well, we were told that there was a request made for funding to go to production fiscal year 1991.

Is that not accurate?

General Greenberg. It was made initially, sir, but there was an insufficient technical data to support and to warrant assurances that we would be able to spend the money.

Mr. McDade. That is——

General Greenberg. We took the money out of the program prior to submission here.

Mr. McDade. That is because of some kind of requirement that you must do it within the first quarter; is that correct?

General Greenberg. Yes, sir.

Mr. McDade. So that if your problem is solved in the second quarter or third quarter, et cetera, and you haven't got the technical matter in hand by the first quarter, you don't generally seek a budget request——

General Greenberg. We attempt to evaluate what the technical aspects and risks are involved in it. I would then ask for a waiver if I felt that the technical risk was low. In this particular case, we weren't sure at all.

Mr. McDade. In the first quarter?

General Greenberg. Yes, sir.

Mr. McDade. What about type classification?

Our understanding is that you have worked out the kinks, that the move from the NDI to the enhanced ammo is now a pretty clear path, not a very difficult one for you as we sit at the table today.

Is that accurate?

General Greenberg. I am not at all certain of that. What the contractor is attempting to describe is that because the NDI problem has been resolved there will be a direct application of that technology to the new ammunition but they have not proven that.

Mr. McDade. So you are not comfortable today that the contractor has gotten over that wicket?

General Greenberg. That is correct.

I am comfortable that he has gotten over the NDI ammunition problem and it is ready for us to begin buying.

To make that leap of faith from there after having solved the NDI ammunition when we have not seen the first round of the enhanced—I am very uncomfortable with that and that is why we decided to pull it out.

Mr. McDade. What is the time frame for being able to determine the testing procedures on the enhanced to get a level of comfort? Do you have any idea? When are you going to get that done?

General Greenberg. I don't have those dates with me, Mr. McDade. We will give you that.

[The information follows:]

Our enhanced ammunition development plan reflects the following major milestones (dates approximate):

Completion of development: April 1990;

Developmental testing: May–September 1990;

System full operational test and evaluation (with the carrier weapon): January–March 1991;

In-process review activities: October 1990–July 1991;

Type classification—limited rate production: March 1991;

Award and production: January 1992 and beyond;
First Article Initial Production Test: January-May 1993;
Type classification—standard: June 1993;
First unit equipped: April 1994.

Mr. McDade. I want to ask a question. If you get type classification and you get done with it in fiscal year 1991, do you plan to submit a reprogramming?

General Greenberg. If we have enough time, sir, in order to make it worthwhile, because as you know, even if I get type classification late in 1991, by the time I got the money to be able to get it on contract, I wouldn't use it until 1992 anyway. So what we would see is where in the 1991 process they would be ready. Obviously if it was very early, first or second quarter, then we would want to ask for a reprogramming.

Mr. McDade. Do you have any idea whether that is a prospect for second quarter to get to type classification?

General Greenberg. I think if you talked to the contractor, he might say yes.

Mr. McDade. No, I want to ask you.

General Greenberg. What they are recommending is that it be type classified in the second quarter. Once we get a type classification, we will make an immediate award if we have the dollars and we can do that as an option on the R&D contract to get started.

Mr. McDade. You have no dollars, do you? Do you have a funding source?

General Greenberg. No, sir. We would have to use a reprogramming action.

Mr. McDade. If that occurred what would be the dollar requirement? Can you tell us? Give us a ballpark figure for the record.

General Greenberg. I was just handed a note. We need a minimum of about $30 million.

Mr. McDade. With the fiscal year 1991 request, the Army is going to have budgeted for procurement of 400 or more 120-millimeter mortars and it looks like the production and funding for the weapons are way ahead of the ammo requirement to support that force.

This seems to suggest that in fiscal year 1992 and in subsequent years, ammunition funding for the mortar is going to have to be robust. You have got mortars out there, but not the rounds, and most likely, more than the average of 170,000 rounds per year that were projected in last year's FYDP.

Does that appear correct to you?

General Greenberg. Yes, sir.

Mr. McDade. I would like you to provide for the record answers for a series of other questions that I have.

[Clerk's note.—Questions submitted by Mr. McDade and the answers thereto follow:]

### 120MM MORTAR NON-DEVELOPMENTAL AMMUNITION

*Question.* I have a number of questions about the 120mm mortar program. First, let's talk about the non-developmental ammunition. I understand that following some delays last year the NDI ammunition has now "cleared all wickets" and in fact was type classified two weeks ago. Is that correct?

Answer. Yes, the 120mm battalion mortar system (BMS) NDI family of ammunition was type classified—limited procurement (urgent) on March 22, 1990.

*Question.* With type classification, the path has been cleared for production contracts. Have any contracts been let?

Answer. Yes, line items under Option 1 of contract DAAA-21-88-0052 were awarded on March 27, 1990 for production of the towed weapon systems, technical data package, and license. Other line items of Option 1 to procure NDI ammunition (high explosive and illumination) were awarded April 13, 1990. The option for the smoke round will be awarded as soon as we establish a budget line for the program. The close date for the award of that option has been extended by mutual consent of the contractor and the government to September 30, 1990.

*Question.* Can you describe the awards in terms of dollars and quantities of ammunition type (HE, illumination, and smoke)?

Answer. To date we have awarded two NDI ammunition production contracts. Those total programs are as follows (dollars in millions/quantities in thousands):

| | Millions | Thousands |
|---|---|---|
| Type: | | |
| HE | $14.0 | 59.0 |
| Illumination | 5.8 | 9.0 |
| Total | 19.8 | 68.0 |

*Question.* My understanding is that this NDI buy (from offshore) is a limited quantity, solely to support initial fielding and operational testing. The Army's intent is to move to procurement of the enhanced 120mm ammunition as soon as possible—correct?

Answer. Correct. The NDI ammunition will be used to support limited initial fielding, training, and testing. It is also true that we wish to move to procurement of the enhanced system as soon as possible.

*Question.* Staff has been told informally that the Army may seek a reprogramming in order to support a purchase of NDI smoke rounds. Is this correct? Our understanding a few years ago was that there were funds already provided for this purpose. So why is a reprogramming needed?

Answer. Funds have been provided for the purpose of buying NDI smoke ammunition. However, the proper budget line for the application of the funds was not established. We are in the process of doing that now. Smoke will be procured in accordance with our existing contract: 15.0 thousand rounds for $5.7 million.

*Question.* We have had some difficulty determining which fiscal year funding has been used to execute the NDI production contracts. Can you shed any light on this?

Answer. Fiscal year 1989 funds are being used to execute our NDI ammunition procurement.

### 120MM MORTAR ENHANCED AMMUNITION

*Question.* Now that the NDI ammunition has been type classified, we understand that both the Army and the contractor feel that the changes made there can readily be transferred to the enhanced ammunition program. As a result, type classification for the 120mm enhanced ammunition is now expected in one year, in April 1991. Correct?

Answer. Type classification—low rate production of the enhanced 120mm mortar ammunition is scheduled for the end of March 1991.

*Question.* If the ammunition is in fact type classified as planned, the Army could make a production aware for the enhanced ammunition soon thereafter. What are the Army's plans in this regard?

Answer. No procurement funds are available in fiscal year 1991. The fiscal year 1992–1997 Program Objective Memorandum is still being developed. Therefore, the Army's ammunition procurement plans have not yet been finalized.

*Question.* Are there any funds available to support a production award in fiscal year 1991? (Or have all the prior year funds been dedicated to the NDI buy?)

Answer. There are currently no funds available to support a production award in fiscal year 1991. The original NDI program (fiscal year 1987) was reprogrammed since we were unable to solve the two major technical difficulties we faced in time for us to deliver the program within the funded delivery period. We then shifted the procurement plan for the NDI to fiscal year 1989. In that year, $33.5 million had originally been made available for the procurement of enhanced ammunition—a program which could not be executed without the prior delivery of the NDI ammunition. Since the NDI procurement only requires $25.5 million, with the permission of the Congress we are seeking to apply the remaining $8.0 million to other higher priority ammunition programs.

*Question.* As you know, there are no funds in the fiscal year 1991 request for 120mm mortar ammunition. Last year, the budget projected $60.4 million (for 172,000 rounds) for fiscal year 1991.

I understand that the reason no procurement funding is in the request before us is because of the slips in type classification, even though the ammunition is to be type classified by the second or third quarter of fiscal year 1991, and therefore a production contract could be made in the fiscal year. Why then are there no funds in the fiscal year 1991 request?

Answer. The Army policy is that a system must be type classified no later than the first quarter of the execution year to budget for procurement in that year. Since the 120mm enhanced ammunition will not be type classified until the second quarter of fiscal year 1991, the soonest we could budget for procurement is fiscal year 1992.

*Question.* We are advised that the programmatics are such that a production award in FY 1991, in the neighborhood of $37 million, could be executed and that FY 1991 funding was sought during the last year's budget revisions. Is this correct?

Answer. If the enhanced ammunition passes testing and is type classified on schedule, an FY 1991 procurement program could be executed for the HE and smoke rounds. The minimum amount required by contract is approximately $29 million. Procuring the maximum amount of ammunition by contract would require approximately $43.5 million. Executing such a program would entail some risk since the ammunition is not scheduled for type classification until the second quarter of the fiscal year. That is the reason we cancelled our initial plan to procure the item in fiscal year 1991.

*Question.* If no FY 1991 funding is provided, would the Army submit a reprogramming request for this purpose in the event the ammunition is type classified and ready for production in fiscal 1991?

Answer. No, the Army has no plans to ask for such a reprogramming.

*Question.* With this FY 1991 request, the Army will have budgeted for the procurement of 400 or more 120mm mortars. The production and funding for the weapons appears to be quite a bit ahead of the ammunition required to support that force. This suggests that in FY 1992 and subsequent years ammunition funding to support the mortars will need to be robust, and msot likely more than the average of 170,000 rounds per year which were projected in last year's FYDP. Is this correct?

Answer. Our procurement requirement depends upon future force structure changes, the projected threat, and current fiscal guidance. All are being consisdered in the development of the FY 92-97 Program Objective Memorandum (POM). In the June/July timeframe after the POM is finalized, the Army will be in a position to provide information on the ammunition procurement in support of a 120mm mortar fielding.

*Question.* Provide for the record: The fielding plan for those 120mm mortars programmed through the FY 1991 budget and for the FY 1992-95 period.

Answer. The 120mm fielding plan is currently being reviewed. Until final force structure decisions are made, the fielding plan will not be complete and therefore is not available.

*Question.* The required initial order quantity as well as training requirements of 120mm mortar ammunition to support these weapons as fielded (please provide ammunition quantities and types).

Answer. The 120mm mortar program is being reviewed in conjunction with developing the FY92-97 POM. It is anticipated that the Army POM will be finalized in the June-July timeframe. The Army should be able to provide the requested 120mm mortar information at that time.

*Question.* A comparison of those quantities above with the programmed funded procurement quantities for 120mm mortar ammunition.

Answer. The 120mm mortar program is being reviewed in conjunction with developing the FY92-97 POM. It is anticipated that the Army POM will be finalized in the June-July timeframe. The Army should be able to provide the requested 120mm mortar information at that time.

*Question.* The current production contract for the enhanced ammunition calls for two years of production for the current producers. At the time those contracts were awarded, these options amounted to production of over 400,000 rounds. Describe the

Army's current plans in regard to executing these options. Has there been any adjustment in the production quantities guaranteed to the winning contractor at the time of the 120mm mortar source selection in 1988? If so, why?

Answer. There has never been a guarantee of production quantities to the winning contractor. The Army has always intended to procure ammunition quantities between the minimum and maximum amounts specified in the contract. These numbers have not been adjusted. The quantities are specified in each of two annual options. The procurement level will depend upon the amount of funding provided. Further, we would make every attempt to synchronize ammunition and weapon systems procurements.

*Question.* What is the current ammunition acquisition strategy for production contracts beyond these?

Answer. There are two strategies for the acquisition of 120mm mortar enhanced ammunition beyond the first two years of procurement.

Strategy 1: In accordance with 10 U.S.C. 2304(c)(3) and FAR 6.302-3, procurement of enhanced ammunition in the third year and out would be made in the Restricted Specified Base. This would be supported by the programmed quantities of ammunition being insufficient to both expand the mobilization base and protect the current producer. During the first year of production, the PM would review the contractor's production rates and conduct a quantitative analysis to determine the feasibility of establishing a second production source. If a second source is justified, then we would employ Strategy 2.

Strategy 2: The third year of production would be accomplished under a combination of contracting methods. This plan would allow us to return to the prime contractor with a sole-source award to ensure the delivery of a least our training quantities while competing some balance that would not impair our fielding effort. Assuming, then, a succesful second contractor being identified, we would (for the fourth year and beyond) provide a guaranteed minimum sustaining rate to each contractor on an annual basis and compete the difference between that amount and the requirement to the contractor offering the best price and schedule.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade.]

## M804 155MM TRAINING ROUND

Mr. MCDADE. I have a series of questions on the 155-millimeter training round for the record that I would like you to answer as well.

[CLERK'S NOTE.—Questions submitted by Mr. McDade and the answers thereto follow:]

*Question.* This year's request includes $32.6 million for the procurement of 203,000 M-804 artillery training rounds. This is a significant increase to the amounts projected for FY 1991 in last year's budget submission. Explain why the Army has requested an increase for the M-804. Have requirements increased?

Answer. The M-804 is a 155mm training-unique artillery round. Training requirements for round increased in February 1989 from 50,000 to 96,000 per year due to increased noise related environmental concerns in the Federal Republic of Germany.

*Question.* Currently the M-804 is produced at the Scranton Army Ammunition Plant. Provide the following:

Is Scranton Army Ammunition Plant the only facility which will receive M-804 work in the near term?

Answer. Yes, Scranton is currently the only facility that will receive the M-804 metal parts contract in the near term.

*Question.* Provides the workload and production schedule for the funded FY 1989 and FY 1990 M-804 programs at the Scranton Army Ammunition Plant.

Answer. During the period in question the M-107 and M-804 are being produced on the same line. Periods of low M-804 production do not reflect reduced production line work; but rather, switching between M-107 and M-804 production or from one fiscal year production to another.

| | Production (K) | Workload (M/Ys) |
|---|---|---|
| Fiscal year 1989: | | |
| April 1990 | 1 | 130 |
| May 1990 | 25 | 130 |
| June 1990 | 24 | 130 |
| July 1990 | 14 | 130 |
| August 1990 | 26 | 130 |
| September 1990 | 22 | 130 |
| October 1990 | 9 | 130 |
| Fiscal year 1990: | | |
| January 1992 | 10 | 130 |
| February 1992 | 24 | 130 |
| March 1992 | 24 | 130 |
| April 1992 | 24 | 130 |
| May 1992 | 24 | 130 |
| June 1992 | 8 | 130 |

*Question.* Provide the workload and schedule at Scranton if production budgeted in the fiscal year 1991 request is fully funded.

Answer. Again, low production figures reflect switching between M-107 and M-804, or fiscal years.

| | Production (K) | Workload (M/Ys) |
|---|---|---|
| Fiscal year 1991: | | |
| June 1992 | 16 | 130 |
| July 1992 | 24 | 130 |
| August 1992 | 24 | 130 |
| September 1992 | 24 | 130 |
| October 1992 | 24 | 130 |
| November 1992 | 24 | 130 |
| December 1992 | 24 | 130 |
| January 1993 | 24 | 130 |
| February 1993 | 19 | 130 |

*Question.* The Army has proposed a potential layaway of the Scranton Army Ammunition Plant in the 1993 time frame. If this occurs, where would the Army produce the M-804?

Answer. The Army has not proposed layaway of Scranton in the 1993 timeframe. The Army intends to compete M864 production between Louisiana Army Ammunition Plant and Scranton Army Ammunition Plant with the losing competitor to be laid away. The

Army does not prejudge that Scranton will lose the competition. However, if Scranton is laid away, the Army would rely on the commercial sector to produce the M804.

*Question.* Assess the feasibility of continuing M804 production at Scranton Army Ammunition Plant on a third party basis in the event the facility is placed in inactive status.

Answer. If Scranton is placed in an inactive status, the Army would competitively procure M804 metal parts from the commercial sector. I see no reason why a commercial business like Chamberlain Corporation, Scranton's current operator, could not successfully compete for the business and produce the parts at Scranton. This could either be done under a leasing agreement or on a third party basis. The planning details of these arrangements are in the preliminary stages.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade.]

## M864 155 MILLIMETER BASEBURNER PROJECTILES

Mr. McDADE. The budget includes $118.5 million for procurement of 138,000 M864 155 millimeter Baseburner projectiles. Last year, there were some program delays caused by technical problems. What were these problems and what is the status of their solution?

General GREENBERG. Yes, sir.

After the round was type classified, the next step is to put it into low-rate initial production and part of that test requires that we do a drop test, a rough handling test. As you recall, sir, this round is the same as most ICM rounds except it has a baseburner on the end. It is screwed on to the rear end of the round.

One of the tests calls for a seven-foot drop test and when it hit at a 45-degree angle, it broke off. Part of the problem was resolved when we strengthened the grommet, the metal or plastic cover that goes over the rotating band. It protected it adequately enough to prevent that from occurring. The problem there was that the grommet kept falling off during what we call the shake, rattle and roll test. Faced with all those problems, we then determined that we did not have an easy problem, but one more difficult than that, so we increased the number of threads in the mating surfaces. When you do that, you then have to adjust the amount of propellant in the round because as you know this is a bursting-type round that distributes grenades. Those two had to be balanced. The final tests of this fix were done last weekend and they were all successful. We are waiting for our scorers, TECOM and AMSAA, to complete their report. We hope by Monday or Tuesday of next week to have the change proposals signed off. That will mean then that we can go into production at the front end of the line hopefully in May or June.

Mr. McDADE. May or June of this year?

General GREENBERG. Yes, sir.

Mr. McDADE. Last year we had testimony that the annual procurement rate of 240,000 would be required to sustain the competitive production base for this particular projectile.

What procurement strategy do you intend to follow for fiscal year 1991?

General GREENBERG. Because I have lost the equivalent of nine to eleven months of production, I have a backlog of almost 600,000 rounds to include the 1991 buy. At the planned rate of production, that is three years' worth of production. The 1991 buy, we will be funding.

As a result, we cut back on the amount of ammunition that we are going to buy in 1991 so that I can try to get back into what we call the funded delivery period, and that is produced within the time frame, the 24-month time frame that we are permitted by the rules. This can be done and, of course, it can be done because I will have two sets of producers for all things. The only stumbling block we have had from time to time has been some concern over the base grain, but we allowed the base grain producer to produce. He has got a surge. The upshot is that we believe we can keep both sides of our base going through the fiscal year 1991 funded delivery period by combining all those buys being so far behind.

Mr. McDADE. What quantity and funding level would be required in fiscal year 1991 to maintain competition for all components and for LAP?

General GREENBERG. Because of my prior-year backlogs, if I got more——

Mr. McDADE. We have a paper that the Army sent over in March that is contrary to what we have been told and led to believe. The paper indicates that in fiscal year 1991, there is an explanation of going to one producer for body and metal parts and our conversation says that you are going to keep two.

General GREENBERG. Let me explain that. Obviously we are going to have to make an award of the 1991 quantity even though from my production hat I am looking at it as an entire 600,000-round quantity. We had said to the world, based on a study that was conducted last fall, that we want to have one metal parts producer in our government-owned plants and, therefore, I am going to compete. I would like to compete at the completion of the fiscal year 1992-funded delivery period or in 1993 and I think that is the announcement we made.

Mr. McDADE. That is why the confusion exists.

General GREENBERG. Yes, sir. I believe that projection was based on a concern that we may not have a 1992 program. So what I am here to tell you is that if we get a 1992 ammunition Baseburner program, then that competition will occur in 1992 for the 1993 time frame. Without it, I would have to use the 1991 quantity to do the competition.

Mr. McDADE. So the question is whether, as you are going through your FYDP, you decide what you are going to do and you are still milling that around?

General GREENBERG. Yes, sir. We have asked for that program and it has been supported by the requirements process, but we have got nine more months to go.

Mr. McDADE. So the Army made the request?

General GRANRUD. He has made the request to me and we have looked at the requirement. We still have a requirement which is unmet. The degree to which we meet that will depend upon the overall——

Mr. McDade. Everybody up the chain of command or just at your level?

General Granrud. My level. The Chief has not signed off because it hasn't got to him.

General Greenberg. That is the reason for that discrepancy, sir.

Mr. McDade. Thank you, General.

It is a lot better when we hear you explain to us. I guess you really don't know what funding levels are currently projected beyond fiscal year 1991?

General Greenberg. No, sir.

Mr. McDade. What is in your POM for fiscal year 1991 and beyond?

General Greenberg. The POM numbers are relatively high, but as you know, those POM numbers were the POM numbers from when we submitted the 1990 budget, and I would say that they are currently out of date and the whole POM is being rewickered.

Mr. McDade. Have you got a 1992 POM?

General Greenberg. I am working on the 1992 POM now.

Mr. McDade. Do you know what it is today?

General Granrud. I couldn't state precisely what it is today. It is clear that M864 has a requirement remaining in 1992 and beyond.

Mr. McDade. When is the decision date?

General Granrud. We will finish the POM at the end of April.

Mr. McDade. General, will you tell us please what the authorized acquisition objective for the Baseburner is and how many have been funded through fiscal year 1991?

General Greenberg. Sir, the ——— objective is about 2,500,000 rounds.

Mr. McDade. How many have been funded through fiscal year——

General Greenberg. 652,000 to 1991.

Mr. McDade. General, provide for the record the status of completion and prove-out for all production facilities for the Baseburner.

[The information follows:]

Overall, we are on schedule for having the necessary production facilities in place and ready to produce the M864 Baseburn projectile. There are three specific operations involved. These operations are grain production and baseburner assembly load, assembly and pack (LAP), projectile metal parts production, and projectile and baseburn assembly LAP.

Baseburner Assembly: Longhorn Army Ammunition Plant (AAP) will complete prove-out of grain production in June 1990. They are scheduled to begin baseburner assembly LAP operations in March 1991. Joilet AAP will complete production prove-out for grain production in October 1990, and start baseburner assembly LAP operations in March 1991 also. Both will complete production prove-out for LAP operations after first deliveries in April 1991.

Projectile Metal Parts Production: Both Louisiana and Scranton AAP will complete facilitization, with installation of the ultrasonic test equipment, in June 1990. Louisiana is scheduled to begin projectile metal parts production in June 1990, and Scranton is scheduled to begin in September 1990. Production prove-out will be completed on their respective first deliveries.

Projectile Load, Assembly and Pack: Milan AAP has completed all production preparations to include prove-out. They are scheduled to begin LAP operations in November 1990. Kansas AAP has completed facilitization, and is scheduled to begin LAP operations in August 1991. Production prove-out will be conducted on their first deliveries which are scheduled for September 1991.

Mr. McDade. Mr. Chairman, I thank you for the time.

Thank you, General.

Mr. HEFNER. Mr. Livingston?

## MISSISSIPPI ARMY AMMUNITION PLANT

Mr. LIVINGSTON. Thank you, Mr. Chairman. Gentlemen, glad to have you here.

Last year Congress appropriated $90 million for the procurement of the M483 155-millimeter projectile. The purpose of this funding was to continue production at the Mississippi Army Ammunition Plant. The Administrator has refused to spend this money and has proposed it be transferred to buy M-1 tanks in fiscal year 1991.

What is the current situation of the Mississippi plant?

General GREENBERG. Back in February, Secretary of Defense Cheney wrote a letter to, I think, Mr. Aspin or Senator Nunn where he stated our intentions to shut that plant down this spring. Notices went out to lay off approximately 250 people, and they will come off the rolls by the end of April. An additional 300 people will be laid off the rolls in June—early June, and then later on, another two or three hundred in a later June time frame.

As you know, as you described, that $90 million was tied up. It is, as I understand it, still not authorized. It is appropriated, but not authorized. We have reached kind of the point of no return where the only dollars I have available to maintain any kind of credible work force at Mississippi will be lay-away dollars. We have sent them some lay-away dollars to begin the lay-away process of the front end of the line already. If I get authorization and I guess authority from OSD and the Army to spend that $90 million for products by approximately the 15th of May, we can still turn some of that around.

My problem, sir, to be brutally honest, is we have reached the point now where we may do some very unalterably difficult things to the people because some of the people have already gone to find new jobs. To bring that work back would mean that we would be buying a very, very expensive round, because the cost is going to be considerably higher. So we are not going to get all the quantity out of that $90 million that we thought we were going to get nine months ago.

Mr. LIVINGSTON. We have got the work force, the lay-away costs and the round itself.

Let's stay on the work force for a second. What are the projected work force figures for the plant for the coming year and when will production end by your estimation?

General GREENBERG. There are three parts to the plants. First, is metal parts and that will end in April and we will lay off approximately 400 people. About June, in the grenade area, we will lay off an additional 260 and the load assemble and pack where all the components are assembled, we will lay off an additional 500 people occurring at the end of June. By July, we will be down to approximately 400 people and those people would be people that we would retain to do the lay-away because the operating contractor has been asked to do the lay-away.

Mr. **Livingston**. I suppose alternative uses have been discussed and considered. Do you have any use for this plant once it is closed in this capacity?

General **Greenberg**. The plant was built as a mobilization base capability and we still want to retain it as a mobilization base capability. To the degree to which we can accommodate local interests, we will attempt to do so. We have been working with the local Congressman from the area and our installation people in attempting to find some method of making space available for other uses and at the same time accommodate our mobilization needs.

Mr. **Livingston**. I understand Congressman Taylor has been very active in attempting to find private uses for the facility and you are cooperating with him?

General **Greenberg**. Yes. The Secretary of the Army is very concerned about this and will do what he can.

Mr. **Livingston**. With respect to the layaway costs, last year you testified that the actual physical layaway could cost you between $25 million and $35 million.

Maintenance and management of existing plant facilities costs another $13 million; severance pay, $4.1 million, and various other layaway costs for a total in the range of $80 to $100 million, which is what we put up for the maintenance of the plant in an ongoing capacity.

Do those figures differ——

General **Greenberg**. Many of the numbers that were bandied about over the last year were contractor estimates. We have now reached the point where we have provided the contractor with our scopes of work. He has come to us with firm proposals and we are in the process of negotiating the actual lay-away numbers.

Mr. **Livingston**. Can you give me a ballpark figure?

General **Greenberg**. Yes, sir. There are two parts to that. The first part is the actual lay-away and we believe that it will not exceed about $33 million. That is the actual hands-on lay-away. In addition to that and rolled into that number of $70 million were some termination costa that the contractor believes we owe him for terminating some of these fixed-price contracts and that is also negotiable. We don't know what that number is going to be. Some of them we think we can roll ito the lay-away cost at the same price that I just described. We believe that actual lay-away will run no more than about $33 million.

Mr. **Livingston**. With respect to the shells themselves, the plant produces the M483.

Has the Army got enough of those?

General **Greenberg**. Yes, sir.

We have about ——— of supply.

Mr. **Livingston**. Last year you had ——— supply or 58 percent of your defense guidance, so you say you have improved that to some degree?

General **Greenberg**. Yes, from the stuff produced throughout the last year and some rework we did. That was based on the requirements determination two or three years ago.

Mr. **Livingston**. Your requirements in the last year have changed?

General **Greenberg**. Yes, sir. They will change considerably over the coming years.

Mr. **Livingston**. The Eastern Europe developments have diminished the need?

General **Granrud**. It is a combination of things; a combination between the M864 and the M483 which indicates that the M864 is the preferred round. We look at the scenarios and try to update those to what we currently view as a more probable outcome in Europe. We project that we have sufficient numbers of M483s.

Mr. **Livingston**. Why is the M864 the preferred round?

General **Granrud**. It is a longer-range round and has a significant capability we have been looking for. So it provides us more flexibility for a wide variety of things. That is the more modern ammunition that we have.

Mr. **Livingston**. What about dependability and lethality? Are those considerations?

General **Granrud**. Yes.

Mr. **Livingston**. General Greenberg, a while ago you were talking about something falling apart. Was that the M864?

General **Greenberg**. Yes, sir, but we are better now.

Mr. **Livingston**. Does the M483 fall apart?

General **Greenberg**. It did at one time, sir, but it is now not a technical problem for us; no, sir.

Mr. **Livingston**. It is a dependable shell?

General **Greenberg**. Yes, sir.

Mr. **Livingston**. Which one would you rather have on the battlefield?

General **Granrud**. I am an artillery officer and would answer that as M864. It provides that largest amount of flexibility. M483s have large combination and we try to select the best ammunition for the task at hand. The M483 has capability at shorter range and proper use on the battlefield. A combination of those things is how we operate.

Mr. **Livingston**. Do you feel you have sufficient numbers to make up your needs?

General **Granrud**. Of the M483, I have sufficient numbers.

Mr. **Livingston**. Are those being produced at other plants in the country?

General **Granrud**. No, sir.

Mr. **Livingston**. So when this plant goes down, you don't have the capacity to produce those?

General **Greenberg**. We have the capacity. We would be capable of bringing the laid-away activities of various plants back up. Every plant is laid away currently as we would hope to lay Mississippi away.

Mr. **Livingston**. So Mississippi would be one of those that you would pull back in should you need the M483?

General **Greenberg**. That is correct.

Mr. **Livingston**. I didn't quite catch your total number for layaway costs.

General **Greenberg**. About $33 million.

Mr. **Livingston**. So you have scaled it back considerably over last year's estimate?

General **Greenberg**. Thirty-three million is for layaway and then there is going to be a cost for termination. Ball-park figure we figure it is less than $30 million for termination costs. Those fixed-price contracts have to be negotiated.

Mr. **Livingston**. What about the cost of annual maintenance? That will be included; correct?

General **Greenberg**. That again is to be negotiated. We think it is going to be about $6 million, and that is not out of the ballpark from the costs of maintenance for the other plants that we also have in layaway.

Mr. **Livingston**. Last year, I think you testified that the Mississippi contractor should seek third-party work.

The Army's Armaments and Munitions Command in Rock Island, Illinois, has prohibited the contractor from doing this.

Is there any reason for that?

General **Greenberg**. Sir, you are giving me new information. I did not know that. I don't know that that is true.

Mr. **Livingston**. I am told there may be some concern about their ability to do third-party work.

If you would check into that, maybe we could assist them to some degree, because this is a major concern.

General **Greenberg**. I know that there has been some overtures to obtain foreign military sales third-party work, so that is what that would be. Up until last week, we were still encouraging that as a means of privatization for the plant. I will run it down, sir.

[The information follows:]

The Army denied the operating contractor of Mississippi Army Ammunition Plant an opportunity to do third party work because of the perception that it would conflict with orderly plans for layaway. The Army has since rescinded and will entertain proposals by the operating contractor for third party work. The Army encourages all its operating contractors to obtain third party work which does not interfere with the current production or mobilization requirements, as a way to maintain a warm production base. The Commander, HQ AMCCOM has the approving authority for third party work at all of our ammunition plants.

The Mississippi Army Ammunition Plant's capability is not needed for current procurements, but is required to meet our mobilization mission, so we are placing it in layaway. Each third party proposal will be examined on its merit. The Army will work with the operating contractor in any proposal for third party work.

Mr. **Livingston**. Initially, Congress had directed the Army to go ahead and complete its order of M483 funds through the 1990 funds and presumably another year or two with renewing the contract.

Wouldn't that actually be cheaper just to run the contract to its normal extension and termination rather than to cut it short at this point?

General **Greenberg**. Sir, I suspect it would have been. Yes, sir.

Mr. **Livingston**. How much do you think we might have saved had we done that?

General **Greenberg**. I wouldn't even hazard a guess at this time.

Mr. **Livingston**. We would have had the original requirement of shells?

General **Greenberg**. Not the original requirement, but we would have completed the existing contracts. All of these fixed-price contracts are basic ordering agreement contracts, so they would have a level of work. They had a level of work to complete. This will put them short of that by some months, not a whole lot.

Mr. **Livingston**. When you terminate a contract like this, you have to pay a contractor a premium for getting out?

General **Greenberg**. Yes, sir. I mentioned this termination cost, that is the premium we are talking about.

Mr. **Livingston**. I take it that your testimony is that we really don't need these shells anymore or at least anymore of the shells than we have currently in stock; is that correct?

General **Greenberg**. We have what we need. That is correct.

Mr. **Livingston**. Thank you very much.

## RDX EXPLOSIVE MANUFACTURING FACILITY

Mr. **Hefner**. In fiscal years 1988 and 1989, Congress appropriated a total of $335 million for construction of a new facility to manufacture RDX explosive at the Louisiana Army Ammunition Plant.

The fiscal year 1991 budget proposes to defer these funds. Why is that?

General **Greenberg**. Sir, as part of the total production base study, we wanted to take a look at all of our explosive needs. Back in 1981—it is probably closer to 1984—we looked at it and we decided that we needed a number of plants to do that work. Based on the requirements that we had, we chose to build a number of those plants. Of course, those numbers were unaffordable as the years went by.

We were then told to take another look at it and we found that our requirements were coming down rather dramatically. The Army uses about 75 percent of the total RDX capacity so we said to ourselves, "Is this facility that we are going to build for $300 million to $400 million a good buy for the taxpayers? Does it make sense before we break ground? Let's make sure that that is something we want to do faced with the enormous budget reductions that we are seeing today," and in that environment, we went back and said, "It is just not a good buy. It will only provide us 2.5 million pounds of explosive per month. Holston, on the other hand, provides 17 million pounds per month.

So to pay $300 million for something which is less than 25 percent, less than 20 percent of our current capability in this environment, just doesn't seem to make a lot of sense. The funds have been authorized and appropriated for the last couple of years. Obviously if we are directed to do so, we will comply with the law, but the Army is not very high on building this facility, to lay it away.

Mr. **Hefner**. Where are you in the planning and design of this facility? Are you on hold there also?

General **Greenberg**. No, sir. There was a two-part program to build this facility. The first was to sign a contract to do 35 percent design. We awarded a contract to do that with a company called J.E. Jones in November of 1989 for about $1.5 million. It was his job to do the design. We will then evaluate his proposal during the summer months, and then we were going to make the award around the September time frame. We chose to continue that design because we would then have a conceptual plan that we could put on the shelf and use in the event of mobilization. We allowed that to proceed. That is ongoing.

**Mr. Hefner.** If we didn't have the real budget constraints, would you make the same decision or is this a casualty of the tight budget crunches?

**General Greenberg.** It is a casualty of our looking at our budgets carefully, which was Mr. Cheney's promise to the President when he took office. He, in turn, asked each of the Services to take a close look at all of our programs in a zero-based way.

I would say today, faced with the requirements that I am seeing, I would not buy that facility. At one time, it was the only way that I could begin to make inroads in my shortfalls. Now I would say that we are within the capability of stockpiling, using some of our Tri- Nitro Toluene (TNT) facilities as substitutes. We have 34 TNT lines in layaway, for example, sir. I would say right now based on everything I know, I would not build that facility.

**Mr. Hefner.** Are you satisfied with what you can do at the Holston Army Ammunition Plant in Tennessee?

**General Greenberg.** Yes, sir.

**Mr. Hefner.** How much would you get at Holston?

**General Greenberg.** 2.5 million pounds a month off of the planned Louisiana facility, whereas Holston is capable of doing 17 million pounds a month.

**Mr. Hefner.** Seventeen million pounds a month; is that sufficient to meet your needs?

**General Greenberg.** Sir——

**Mr. Hefner.** In the environment that we are in now?

**General Greenberg.** Yes, sir.

It is going to require that we be somewhat short of what we are projecting for our requirement. Since our requirements are so fluid at this point, we just believe that to build a facility and then see those requirements come down so low, that we would be overfacilitized is just not good business.

You asked me what I would do outside of this fiscal environment. I certainly would say if I thought that I would have needed the facility, I would certainly delay it a couple of years until JCS has a chance to look at the requirements and see whether, in fact, we are going to need it. From what I have been able to see right now, as you bring the requirements down for those eight or nine or ten items that use the preponderance of this material, I don't believe we need the facility.

**Mr. Hefner.** How much money have we spent thus far in planning and design for this facility?

**General Greenberg.** I think we spent probably about $2 million, sir. We have the one/five for Mr. Jones' folks. There was some administrative costs involved as well.

### 120MM TANK AMMUNITION

**Mr. Hefner.** ———. This round has been funded in procurement for three years. What is the status of this program? What have been the results of initial production testing and lot acceptance testing?

This, to me, is a very fascinating weapon.

**General Greenberg.** We are in our second year of production on this round. We have, since we began, qualified a second contractor.

They, along with Honeywell, are actively engaged in producing this round. We are about two months behind schedule, which, considering the complexity of this round, is almost on schedule. We are going to deliver the fiscal year 1990 program by the end of September of 1991, which will put us right on schedule for the 1991 program. This is a success story.

Mr. HEFNER. You are very high on this program?

General GREENBERG. Yes, sir.

I can say this in a closed session. The Armament Enhancement Initiative, AEI, has allowed us to field a new tank round almost every two years. I think that is phenomenal concerning the technical challenges that face this program.

Mr. HEFNER. Mr. McDade?

## HMX EXPLOSIVE MANUFACTURING FACILITY

Mr. McDADE. General, let's talk for a few minutes about the HMX explosive production facility.

For a number of years, Congress has been funding Army budgets for the facility at the Longhorn Army Ammunition Plant to produce the explosive HMX using a new process called Musall, if I am saying it correctly. The new process is claimed to be less expensive than the current one. To date, a pilot plant has been constructed to test this process, and a full-scale design funding has been appropriated. Fiscal year 1991 was to have been the first year for construction funding, but the budget has effectively cancelled this program.

Tell us why, will you?

General GREENBERG. Sir, for the same reason we decided not to build the RDX facility, we decided to cancel the HMX facility.

Mr. McDADE. Restate that reason.

General GREENBERG. The requirements weren't there to support the building of a whole new facility at about $300 million.

Mr. McDADE. Tell us what your capacity is to meet those requirements.

General GREENBERG. Our requirements for peacetime are about 400,000 pounds a year. We can meet that 400,000 pounds adequately from Holston. The requirements for the mobilization are about 1.2 million pounds. We can almost meet all of that from Holston. Holston is capable of one million pounds. That is based on the old requirements, which we believe are going to be coming down.

Mr. McDADE. That requirement will come down a bit.

What is the status of the pilot plant? What have we learned from its operation?

General GREENBERG. The pilot plant is complete and operating. We are going to operate through fiscal year 1990. We are getting valuable information from it. We know the Musall process works. We have not put enough quantity through it yet to determine whether the cost savings we had anticipated are there. We think probably not, but nevertheless, we believe we will understand that. That will give us then two processes if we had to go to war to go back and build this thing. We think there is a very, very valuable lesson learned.

Mr. McDade. Tell us how much is included in the budget for the pilot plant for fiscal years 1990 and 1991.

General Greenberg. We don't have any more money in this program. We are going to wind this program down.

Mr. McDade. I am talking about additional testing really, fiscal year 1990——

General Greenberg. We extended the prove-out about three more months. That will do the total prove-out. There will be no additional testing. We will have gained all the information we can gain without spending more dollars.

We don't think that more is productive.

Mr. McDade. Okay.

Any changes in the testing program?

Specifically, is a fully integrated demonstration of all process elements operating at the same time still programmed?

General Greenberg. Absolutely. That is scheduled for June. You will have this thing going from one end to the other.

Mr. McDade. Prior to close out?

The committee recently received an information paper on the HMX program which said, in part, "The Army has been testing a process to recrystallize HMX using dimethylsulfoxide, or DMSO. Recent results are extremely promising. The efficiencies of this process would result in increased mobilization capacity comparable to construction of the new facility."

Can you give us a layman's view of that?

General Greenberg. I think we decided to cancel the work of DMSO. It is extremely hazardous. By the time we figure out how to dispose of the waste material and handle it, we will have eaten into our savings. We believe that those savings were overstated. We know of no industry evidence which would lead us to believe that this will save us big bucks.

Mr. McDade. Thank you, General. Thank you, Mr. Chairman. I have no further questions.

Mr. Hefner. I have no further questions.

We will have other questions for the record, General.

Mr. Young and Mr. Wilson have questions for the record also.

We would like to thank you gentlemen for being with us. It was very helpful.

The committee adjourned until 1:30 this afternoon.

[Clerk's note.—Questions submitted by Mr. Young and the answers thereto follow:]

## Ammunition Budget

*Question.* General, this committee has always been concerned about the amount of ammunition you have requested. During the last six years, the budget for conventional munitions has declined by nearly 40 percent, and this year's request at $1.4 billion is about 25 percent less than what Congress funded last year. Does the budget request provide adequate ammunition to maintain readiness and sustainability for the Army?

Answer. Our fiscal year 1991 ammunition budget request supports training at 100 percent of historical levels and provides approximately ——— of sustainability, in the aggregate, for preferred munitions. Based on the projection of a reduced threat and increase in warning time we feel our budget request, although significantly lower than in previous years, is adquate to maintain readiness and sustainability for the Army.

*Question.* Does it provide adequate funds for training?

Answer. Yes. Training is supported at 100 percent through the combination of procurement funding in the budget and by drawing down selected items in the war reserve stockpile.

*Question.* Will we have to draw down stockpiles to support training under this budget?

Answer. Yes, the estimated dollar amount of training ammunition coming from existing inventory in FY 1991 is $475 million.

### 105MM KINETIC ENERGY (KE) TRAINING ROUND

*Question.* General Greenberg, specifically let me ask you about the 105mm Kinetic energy rounds. The Army has recommended canceling the M-1 tank which will leave a larger number of 105mm tanks (M60 and M1) in the Army's tank fleet well into the future. The budget request reduces the training round (M724A1) from last year's $39.4 million to only $6.5 million in FY 1991. At the same time, you are proposing $67 million worth of the combat kinetic energy rounds (M900E1). What is the rationale for cutting 105mm KE tank training rounds at the same time that the Army is buying large amounts of the 105 KE service ammunition?

Answer. The Army is undergoing force structure changes in Central Forces Europe resulting in realignment of weapons systems. The Army's current plan is to reposition the majority of the 105mm tank fleet to the Army Reserve and National Guard. This redistribution causes about a 75% peacetime training ammunition requirement reduction, since training for the National Guard is on a cyclic basis of about every three years compared to annually for the active force. The service KE round is the new M900E1, Armor Piercing Fin-Stabilized Discarding Sabot with Tracer (APFSDS-T) round developed in conjunction with the Armament Enhancement Initiative (AEI) program. It provides improved lethality and survivability to the tank crew, thus offsetting obsolesence of the 105mm tank fleet. Fiscal year 1991 is first year of full production. This buy builds toward our inventory objective of the service round we would need in wartime.

*Question.* General Greenberg, with the cancellation of M1 tank production, will there not be a large number of 105mm tanks in the Army inventory that require KE training ammunition?

Answer. Planned curtailment of the 120mm production does cause a retention of a portion of the 105mm tank fleet in the Army inventory. The current plan is this fleet will migrate to the Army Reserve and National Guard force structure. Therefore, the peacetime training requirement is reduced by 75% resulting in decreased buys.

*Question.* What role will conventional ammunition play in the changing world events as we focus our defense strategy on low and mid-intensity conflicts?

Answer. Conventional ammunition plays a key role in the Army's current strategy. It is expected that this role will remain relatively unchanged, even with the increased emphasis on supporting combat operations in low and mid-intensity conflicts. The Army plans to procure the types and proportionate amounts of ammunition that it has in the past, with particular emphasis on modern ammunition required to overmatch threat capabilities.

*Question.* What is the Army's plan to maintain an adequate ammunition base to ensure readiness and training capabilities?

Answer. The Army has completed a study of the Ammunition Production Base and presented the results to the Secretary of the Army. The Army study will be available to the Congress as an Annex to the Army Integrated Ammunition Plan.

The Army plans to restructure the Ammunition Production Base by consolidating it. There will be fewer active plants (eight versus sixteen), more inactive plants (thirteen versus eight), and more plants considered for excess (six versus three). The Army believes that consolidation will provide a flexible core of ammunition plants that will provide production efficiencies, satisfy training standards, and support war fighting deterrence as a well maintained and efficiently utilize the industrial base.

[CLERK'S NOTE.—End of questEons submitted by Mr. Young. Questions submitted by Mr. Wilson and the answers thereto follow:]

## PLASTIC TRAINING AMMUNITION

*Question.* It has come to my attention that many of tactical ground units in the Marine Corps Reserve, Active Army, Army Reserve and Army National Guard are not receiving adequate training on some of their organic weapons because of the limitations of range facilities at the locations where these units are stationed because of range safety requirements and environmental limitations. Please comment.

Answer. This is not true relative to active Army, Army National Guard and Reserve units. It is presumptive if we respond for the Department of the Navy regarding their Marine Corps component.

*Question.* I refer specifically now to .50 caliber training for the reserve components with their very limited ranges at drill sites. Isn't it true that many units are not receiving adequate training on these weapons for this reason.

Answer. No, this is not true. Training ranges for caliber .50 machine guns are not available at many Army Reserve drill sites. Units using these sites must schedule training at the nearest DOD facility that has a training range.

*Question.* Isn't it true that the USMC and National Guard have expressed interest in the new .50 Caliber Short Range Training plastic ammunition for this very reason? In fact, isn't it true that the USMC has now purchased some limited range plastic training rounds already and is pushing hard for its type classification?

Answer. The USMC is monitoring the Army efforts in short range training ammunition. The current and prior contracts for this item did not include USMC buys. However, the Army Guard and Reserve have expressed an interest in caliber .50 short range training ammunition. This item could permit training in Limited Training Areas. The ammunition is not new. The Army type classified caliber .50 short range training ammunition on the 24th of May 1983.

*Question*. I am also told our regular units, as well as some reserve units equipped with the larger caliber 25mm Bushmaster gun on the thousands of Bradley Fighting Vehicles we recently have bought, face even more serious training limitations. We are told that crews on these systems are experiencing serious training decay, as happens on all systems after initial qualification training for the very reason. Comment?

Answer. Prior to fielding of the M–910 training round in FY 1989, many active and reserve units experienced limitations in 25mm training due to the range limitations of the service armor piercing discarding sabot (APDS–T) round. These units were restricted to firing training practice (TP–T) rounds which ballistically matched only the HE service round, leaving a void in the training program. The new M-910 training round ballistically matches the APDS–T round at normal target engagement distances and fits within range safety fans on Bradley ranges due to its aerodynamic high draft design, thus allowing all units to meet STRAC requirements.

Recent completion of the post fielding test analysis of the Bradley Unit Conduct of Fire Trainer (UCOFT) revealed skills can be effectively sustained by using UCOFT between gunnery periods. Additionally, 25mm gunnery skills will be sustained between live fire events through the introduction in FY 91 of the precision gunnery system (PGS). This laser device, which mounts on the Bradley, will allow crews to maintain gunnery skills at home stations and local training areas, countering skill decay between live fire gunnery periods.

*Question*. Our briefings on Short Range Plastic Training Ammunition indicates that realistic marksmanship and crew-drill training can be accomplished on scaled ranges greatly reducing range physical and environmental requirements. Doesn't it logically follow then that training could be accomplished at many more locations and therefore many more troops would be able to receive training as well?

Answer. We assume you are referring to caliber .50 ammunition. Effective marksmanship and crew drill training is possible with short range training ammunition. The Army type classified caliber .50 short range training ammunition for this reason. To the extent that scaled ranges are available, the logic is correct.

*Question*. Our briefings also indicate substantial cost savings. Ammunition costs alone could amount to 40%–60% savings over conventional training rounds. Other tangible savings could be realized in eliminated transportation costs to existent ranges, savings on costs to buy additional acreage to meet existing training shortfalls, and savings on environmental clean-up of training facilities which we are all learning is astronomical as we try to implement base closure laws. Not to mention greatly reduced noise and air pollution considerations in those areas, particularly Europe where our field commanders are under severe restrictions causing training to suffer greatly. Comment?

Answer. Only Western European respondents submitted bids for FY87/88 and FY89 competitive procurements for caliber .50 plastic ammunition. Bakelittfabrikken A/S, Norway won both bids. The FY89 cost, influenced by an unfavorable exchange rate, was $1.08 per cartridge. The FY90 cost of caliber .50 ball training ammunition is $0.97 per cartridge, manufactured at Lake City Army Ammunition plant, Independence, MO. Therefore, plastic is $0.11 each more expensive on a direct purchase cost comparison. Plastic ammunition has an additional investment cost; the gun cannot fire on automatic without a recoil amplifier. Brochures from the two major Western European manufacturers clearly note that automatic firing requires this device that they manufacture.

The only respondent to the Army's competitive procurement request for caliber .50 machine gun recoil amplifiers was Norway. We have a contract for 3,950 amplifiers at a cost of $3,000 each.

Savings in transportation and acreage costs are possible only if the units being trained can avoid these costs. Environmental, air and noise pollution benefits have not been evaluated; however, they are probably minimal. To meet a realism requirement, short range plastic ammunition sounds like combat ammunition when it is fired, i.e. it is just as noisy. Air pollution is essentially the same since propellant gases are still vented to the atmosphere. Environmental responsibility is still accrued; we merely exchange a metal cartridge case and projectile for a metal and plastic cartridge case and a plastic projectile. Preliminary experience indicate that disposal of spent components is more difficult for plastic than metal.

*Question.* I would like the Army, as lead DOD agency in this area, to receive these briefings and consider what potential benefits may be accrued with the use of Short Range Plastic Training Ammunition to augment training for a more ready tactical force. Please report back to this subcommittee your findings.

Answer. We would like to receive these briefings. We are not aware of any briefings on this subject in which we did not participate or initiate. Our ability to consider the benefits from the use of this type of ammunition are as stated in our 28 February 1989 report to the subcommittee. The potential benefits are as noted in your question and the report. However, there is not substantial use data available for this type of ammunition; thus, we can not evaluate the realization of these benefits. The Army, as the Single Manager for Conventional Ammunition, will procure 5.6mm short range training ammunition for the Army and Air Force; the Navy and Marines have not stated any requirements. For caliber .50 short range training ammunition, the other military services have not stated any requirements and our prior procurements will meet Army requirements.

## MULTI-PURPOSE INDIVIDUAL MUNITION (MPIM)

*Question.* Prior year funding for the MPIM Proof-of-Principle (POP) program has been provided by the Congress. If one or more of the candidate systems currently undergoing testing proves promising, what level of FY 1991 RDTE funding is required to start FSD, and how does the Army plan to fund the effort?

Answer. $13.0 million is required in FY 1991 to fund the first year of the MPIM FSD. The Army submit has been zeroed by the

Office of Secretary of Defense and there are no current plans to refund the program for FY 1991.

*Question.* If the Congress fails to provide FSD funding in FY 1991, what is the Army's plan with respect to the overall program?

Answer. The MPIM Program Office will complete the POP effort and down-select a winning FSD candidate with the FY 1990 funds. If the FY 1991 budget remains at zero level funding, it is unlikely that the contractor or government team would remain in existence for a year without funding. The program development would probably be canceled.

*Question.* The Department of Defense budget for Fiscal Year 1989 indicates an Army request of $16.6 million for 11,000 AT-4 weapon systems. Further review of the budget request shows that the United States Air Force, United States Marine Corps, and United States Navy do not support further AT-4 procurement. In view of these facts, can we assume that the Fiscal Year 1991 AT-4 procurement will be the last?

Answer. The Fiscal Year 1991 procurement of AT-4 is the last buy of that weapon system. It is planned to negotiate the Fiscal Year 1991 contract to continue the Fiscal Year 1990 production for another month and a half at approximately the same unit price as the Fiscal Year 1990 buy.

*Question.* Has our recent experience in Panama validated the need for an AT-4 replacement such as a bunker buster for Military Operations in Urban Terrain (MOUT)?

Answer. Reports from the MOUNT Operation in Panama reinforce the Army's need for a man-portable, individually used munition capable of defeating bunkers and light skinned armored vehicles. The AT-4 is effective against light armor but does not perform well as a bunker buster. To solve this problem, the Army is deveoping the Multi-Purpose Individual Munition (MPIM). MPIM will provide the dismounted soldier with a bunker busting capability and the ability to defeat light armor.

[CLERK'S NOTE.—End of questions submitted by Mr. Wilson. Questions submitted for the record and the answers thereto follow:]

## OVERALL AMMUNITION BUDGET

*Question.* General Greenberg, you have testified that the overall funding level for ammunition procurement should be at about $2 billion in order to prevent erosion of our ammunition supply and production base. I note that even as recently as the amended fiscal year 1989 budget, your fiscal year 1991 ammunition budget was projected to be $2.6 billion. For the record, provide a list of additional ammunition end-items and production base projects that you would procure if the total ammunition appropriation was $1.8 billion, $2.0 billion, and $2.3 billion in fiscal year 1991. Also supply the rationale and impact of each proposal.

Answer. I am not sure how I could use additional dollars to satisfy CINC requirements. Any additional dollars that would be given would not buy the items they want, because I simply cannot build any of the new start items any faster because of production problems. I have as much as I could use within the production timeframes that are allowed me.

## AMMUNITION REQUIREMENT DETERMINATION

*Question.* How does the Army go about determining its ammunition requirements for training and for war reserves?

Answer. The Army's training-ammunition requirements are based upon force structure and historical usage factors associated with achieving particular training standards. Army war-reserve ammunition requirements are based upon results of a set of scenario/theater/timeframe specific, force-on-force, interactive combat simulations.

*Question.* What changes, if any, are being considered in the way ammunition requirements are determined? Why are these changes being considered?

Answer. Training ammunition requirements will continue to be determined on historical levels adjusted for force structure and training standard changes. The methodology by which the Army calculates its war-reserve requirements is being changed to more closely reflect how combat expenditures would actually occur. The most significant changes involve calculating major end item (e.g., tanks) and ammunition requirements interactively (vice independently) and restricting expenditures of those on-hand, usable items which the Army will no longer procure.

*Question.* What do you expect to be the results of these changes?

Answer. The changes to the war-reserve requirements process will produce projected combat expenditures that more closely approximate what would be required should a particular conflict occur. Initial results of combat simulations under the revised methodology indicate some reductions in projected combat expenditures overall. However, requirements for modern munitions remain high.

## BUDGET PLANNING GUIDANCE

*Question.* The Office of the Secretary of Defense annually gives the services guidance to use in the budget planning process. In the case of ammunition, this guidance consists of assumed war scenarios, days of supply requirements, production base policy, mobilization requirements, and so forth. What guidance has been given for use in planning the fiscal year 1992 budget?

Answer. The Defense Planning Guidance published in January 1990 gives no specific days of sustainment objective for preferred munitions. The FY92 budget is still in the early planning and formulation phase. The Army plans to formulate the FY92 ammunition budget based upon reduced forces, reduced threat and constrained funding. The Office of the Secretary of Defense has not yet reviewed the Army's plans for FY92 and beyond in light of the changed world situation. We expect definitive guidance to emerge during the review process this summer in time to be incorporated into the FY92/93 President's Budget request.

*Question.* How will the change for fiscal year 1992 impact the way you fashion your budget? Without specific guidance, how will you know what to budget?

Answer. Absent any guidance on ammunition planning objectives in the new Defense Planning Guidance, the Army has established specific goals similar to that contained in previous years Defense guidance. This will be changed as appropriate should OSD provide more specific requirements. The specific mix and quantity of items to buy will be driven by the threat, Army force structure, priorities and available resources. The Army will consider these factors as it develops its budget. This is consistent with previous budgeting practices.

## Ammunition Production Base

### FISCAL YEAR 1990 ADD-ON

*Question.* Last year, Congress appropriated an unallocated add-on of $120 million for production base improvements, including environment cleanup. The Army was directed to send the Committee an allocation of this funding. What is the status of your allocation of these funds and when will we see it?

Answer. An allocation list with backup documentation has been prepared. It is being staffed in Army and is expected to be forwarded to Congress by May 1, 1990.

*Question.* What criteria were used in this allocation?

Answer. The projects had to be designed and executable. Priority was given to environmental projects; followed by safety, improvement of production capability, and correction on infrastructure deficiencies.

### REVIEW OF PRODUCTION FACILITIES

*Question.* General Greenberg, in your statement you say that "we find ourselves with a current ammunition production base that is out of balance with projected needs. Specifically, much of our government owned base will soon be neither equipped nor configured to meet future requirements". Please, amplify on this and tell us what you are doing about it.

Answer. New munitions being developed and fielded require newer technologies for manufacture. Examples would be the electronic mines and SADARM, new propulsion systems, such as the Unicharge, liquid propellant, and electro-magnetic. For the most part the Army Ammunition Plants have older technologies for manufacture. It is easier and most cost effective to purchase these new technologies by awarding "System" type contracts to the private sector.

Some solutions to the reduced ammunition requirements for the Army Ammunition Plans are to:

—Consolidate base to core of "flexible" plants.

—Workload core plants to achieve credible deterrence, production capability and stability for workforce.

—Retain well maintained inactive base for emergency.

*Question.* According to the RDX deferral document, the Department is conducting a review of all ammunition production facilities to determine future requirements. Who specifically is conducting this review and what are the milestones?

Answer. The U.S. Army Materiel Command has conducted two studies. The RDX Explosives Study is complete and was forwarded to the Office of the Secretary of Defense on April 12,1990. The Ammunition Production Base Study is expected to be released to the Office of the Secretary of Defense May 1, 1990.

*Question.* Are contractor-owned facilities as well as government-owned facilities part of this review? If not, why not?

Answer. Yes. Contractor-owned facilities were considered on certain critical items for mobilization, such as kinetic energy penetrators, fuzes, metal parts, and combustible cartridge cases.

*Question.* What guidelines or criteria are the reviewers using in conducting this study?

Answer. The study was a "fresh look" with the intention to optimize ammunition production and procurement. It considered both the government-owned and private sector facilities for work transfers, plant consolidations, and plant expansions. It identified the costs to implement the plan, program size and constraints.

*Question.* Are you likely to be proposing changes to your fiscal year 1991 budget as a result of this review?

Answer. There are no significant changes proposed at this time. However, some changes may occur in later years as force structure and threat changes influence the ammunition requirements.

*Question.* What changes in your production base policy are likely to result from this review?

Answer. There will be fewer active Army Ammunition Plants (AAP) and more inactive AAPs retained for mobilization (MOB). Plants and equipment not required for MOB will be considered for excess. There will be a greater reliance on "Systems" contracting and less Government Furnished Material.

*Question.* Is this review also looking at the need for, and condition of, the vast array of ammunition production facilities which are not now being used but are claimed to be needed for "mobilization?" If not, should not such a review be made in light of the changing world situation?

Answer. Yes. The Study considered mobilization production facilities. Some facilities may be excessed, such as Cornhusker Army Ammunition Plant. We intend to undertake a complete review of the inactive base in light of revised threat projections to determine ways to consolidate, streamline management, and reduce response times.

## CLOSING AMMUNITION PLANTS

*Question.* The Fiscal Year 1991 budget forecasts closure and layaway of the Mississippi Army Ammunition Plant. What other government-owned plants do you expect to be closing in the next five years?

Answer. The Army plans to close Indiana, Louisiana, or Scranton and Kansas AAPs by Fiscal Year 1993. Kansas AAP will be offered for third party lease. The loser in a competition between Louisiana and Scranton for metal parts will be closed in Fiscal Year 1993. Longhorn and Sunflower AAPs are planned to be closed by Fiscal Year 1994. Sunflower will cycle periodically to replenish depleted stockpiles.

*Question.* What will it cost to put these facilities into mothballs and what will be the annual maintenance costs?

Answer. Estimated costs for layaway and maintenance of the closed plants by fiscal year in millions of dollars:

[In millions of dollars]

| | Fiscal year— | | | | | |
|---|---|---|---|---|---|---|
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
| Layaway | 14.6 | 18.3 | 27.4 | 11.0 | 24.3 | 16.7 |
| Maintenance | 14.5 | 17.7 | 18.7 | 19.9 | 23.8 | 30.1 |
| Total | 29.1 | 36.0 | 46.1 | 30.9 | 48.1 | 46.8 |

*Question.* What consideration is being given to disposing of some of the government-owned ammunition plants, both those currently in production and those in the mobilization base?

Answer. Army policy is that all plants not required for mobilization will be considered for excess. "Excess" plants may be offered to other government agencies after environmental restoration within the Federal Government and may be disposed of ultimately by the GSA if there is no interest.

*Question.* What contractor-owned ammunition facilities will be closing in the next five years?

Answer. This cannot be determined since the contractors normally compete for awards of Army contracts. As the ammunition program declines there will be less for the private sector to produce. Reductions similar to those in the government-owned production base are anticipated in the private sector.

*Question.* What contractor-owned facilities will the Army put in layaway in the next five years and what will this cost?

Answer. This will be reviewed on a case-by-case basis as producers designated for mobilization complete their production contracts. Cost estimates are not available at this time due to uncertainties about which commercial plants will close.

## MAINTENANCE OF INACTIVE INDUSTRIAL FACILITIES (MIIF)

*Question.* Last year, the Committee agreed with a Senate proposal to fund the cost of maintaining inactive facilities in procurement rather than operation and maintenance. The fiscal year 1991 budget submission continues this practice. What is the impact of this change.

Answer. This change provides greater assurance that the necessary maintenance of the inactive base will in fact be performed.

*Question.* The Fiscal Year 1991 budget for maintenance of inactive facilities is $67.8 million, a slight increase over the current year. How does this level of funding compare to prior years?

Answer. The funding levels for fiscal years 1986 through 1991 are as follows:

| Fiscal year: | *Millions* |
|---|---|
| 1986 | $82.4 |
| 1987 | 88.5 |
| 1988 | 45.2 |
| 1989 | 52.8 |
| 1990 | 64.6 |
| 1991 | 67.8 |

**(FY 90 includes Congressional Plus-Up for Joliet and Badger Army Ammunition Plants.)**

*Question.* What do you consider to be a "fully funded" level for maintenance of inactive plants? What is not being accomplished that should be accomplished?

Answer. The "fully funded" level for the Fiscal Year 1991 MIIF program would be $106 million, however the Army feels that the $67.8 million request is adequate considering other priorities.

Those efforts which are not being accomplished include detailed equipment/facilities inspections to identify impending problems, detailed equipment maintenance to avoid equipment deterioration, and preservation of laid away equipment where preservation is breaking down. In some instances, cycling of equipment and grass control, which may pose a fire hazard, are not being accomplished.

*Question.* The Army has under way two initiatives to reduce the cost of maintaining the inactive production base. One is to reduce the administration and management costs; the other is to improve layaway procedures so that less periodic maintenance is required. What have been the results of these efforts to date?

Answer. As a result of significant reductions to the Fiscal Year 1988 Industrial Preparedness Operations program, funding for the laidway production base was reduced by $43.3 million, from $88.5 million to $45.2 million. To facilitate this cut, the entire program was scrubbed and all remaining funded effort is considered to be bare minimum requirements. For example, internal staffing requirements of the contractor's were reduced from 1474 people to 590. Only those minimum essential personnel required for security, safety, fire protection and administration of the plant remained funded. Contract Data Requirements Lists were reviewed and reporting requirements which could be terminated without impacting Army Regulations and/or Public Laws were deleted. Those reports deemed not necessary by AMCCOM, but required by regulation, were forwarded to higher headquarters for recommended deletion.

Other cost-saving initiatives under consideration to reduce administrative and management costs are as follows:

Contractual effort is underway to examine the feasiblity of leasing Government-Owned facilites to private industry.

Reduced support of selected allied requirements will automatically reduce MIIF funding requirements.

A review of regulations applicable to Government-Owned Contractor-Operated plants was conducted which challenged current ways of doing business. Allocated and direct personnel savings were identified by changing policies and procedures.

In the area of improving layaway procedures, we are placing equipment and buildings into deeper layaway states for long term storage that require less active maintenance and machine cycling. In the case of Mississippi Army Ammunition Plant a managmeent decision was made to preserve equipment and retain it in a consolidated weathertight building which allows for reduced expenditure of funds for maintenance.

*Question.* How much has been saved from these initiatives?

Answer. An estimated $900,000 in savings is attributed to the initiative to find more efficient ways of doing business.

*Question.* Provide some specific examples of these savings for the record.

Answer. Areas where savings occured are:

Revised the procedures by which contractor overhead expenditures are reviewed and authorized.

Revised the procedures for the submission of cost and pricing proposals.

Proposed and implemented a change to property inventory procedures.

## RDX EXPLOSIVE MANUFACTURING FACILITY

*Question.* In fiscal years 1988 and 1989, Congress appropriated a total of $335 million for construction of a new facility to manufacture RDX explosive at the Louisiana Army Ammunition Plant. The fiscal year 1991 budget proposes to defer these funds.

What additional capacity would be added if the Louisiana facility is constructed?

Answer. Louisiana could produce 2.5 million pounds per month.

*Question.* The $335 million previously appropriated was supposed to have been the estimated full cost of the facility. Last year we were told that a facility to accomplish the original intentions of the program would cost between $415 million and $487 million. What caused the change and what are your current estimates?

Answer. Inflation since the 1983 cost estimate and inclusion of a multi-product finishing facility were not in the original estimate. Current estimates remain the same at $415 to $487 million.

*Question.* Last year we were told the original bids for this facility were considered unacceptable because of material exceptions taken by the bidders to the terms and conditions of the solicitation. What changes were made to the solicitation to make it more acceptable and what has been the response to those changes by potential contractors.

Answer. Several changes were made to lower financial risk by the contractor. Primarily it was to contract proveout of the facility on a cost plus basis rather than firm fixed price. Two firms presented proposals to the Army. The Army accepted one.

*Question.* The fiscal year 1988 portion of the proposed deferral, $238 million, has been included in the House version of the Supplemental as a rescission. In the event that the rescission and deferral are not agreed to in conference, would it be possible to sign a contract for this facility before the end of the fiscal year?

Answer. Yes it would be possible.

*Question.* What priority does the Army and OSD place on this project? Would they spend the funds for this purpose if they were made available for obligation?

Answer. The Army places a low priority on construction of an RDX facility prior to mobilization. Stockpiling RDX has always been part of the Army's proposal to manage the mobilization shortfall with the best return on investment.

*Question.* If the facility were to be completed and proven-out, would the Army use it for peacetime production or would the Army continue to get its peacetime requirements from Holston?

Answer. If completed, the RDX facility would be laid away for mobilization. Peacetime requirements are too low to sustain two plants and Holston Army Ammunition Plant is required due to its multi-product RDX and HMX capabiliteis that would not be available at the Louisiana Army Ammunition Plant faciltiy.

## HMX EXPLOSIVE PRODUCTION FACILITY

*Question.* For a number of years, the Congress has been funding the Army budgets for a facility at the Longhorn Army Ammunition Plant to produce the explosive HMX using a new process called Musall. The new process is claimed to be less expensive than the current one. To date, a pilot plant has been constructed to test this process, and full-scale design funding has been appropriated. Fiscal year 1991 was to have been the first year for construction funding, but the budget has effectively cancelled this program. Why?

Answer. The construction of an HMX facility prior to mobilization (MOB) to meet a small MOB capacity shortfall does not offer the Army a good return on investment. A stockpile of HMX to meet the MOB shortfall would cost less than one percent the cost of a new facility and would serve the same purpose.

*Question.* What is the status of the pilot plant and what has been learned to date from its operation?

Answer. The pilot plant is completed and is being proven out incrementally with a demonstration test scheduled for June 1990. Results to date confirm that the Musall process can produce HMX at production rates.

*Question.* What additional testing is scheduled for the pilot plant and how much is included in your budget for this in fiscal years 1990 and 1991?

Answer. Proveout and demonstration tests are scheduled through June 1990. There are no funds in FY 1990 or budgeted for in FY 1991 for the pilot plant.

*Question.* How has the testing program been changed since last year? Specifically, is a fully integrated demonstration of all process elements operating at the same time still programmed?

Answer. The testing program has not been changed. The demonstration test is scheduled for June 1990.

*Question.* Have peacetime and mobilization requirements changed since last year? What are those requirements and what is current production capacity the Holston Army Ammunition Plant where HMX is now produced?

Answer. Peacetime and MOB requirements have remained stable for the past year. The peacetime requirement is 400 thousand pounds per month and 1.19 million pounds per month at mobilization.

Holston Army Ammunition Plant has a current capacity of 44,000 pounds per month.

*Question.* If a new full-scale facility were to be built, which process would be incorporated, the Musall or the Bachman?

Answer. The Bachman process is the only commercially proven process. The Army is verifying the Musall process by the proveout of the pilot plant at Longhorn Army Ammunition Plant. A decision has been deferred pending results of the proveout.

*Question.* What is your estimate of the total cost of such a facility?

Answer. The cost of a Bachman plant would be approximately the same as a Musall plant or $400-450 million.

*Question.* For the record, what is the status and planned use of the $12 million in design money appropriated last year?

Answer. The funds have been withheld by OSD and will be used for higher priority items.

### NORRIS VERNON FACILITY

*Question.* Last year, Congress provided funds to procure an additional 24,000 rockets for the Multiple Launch Rocket System (MLRS). One of the reasons was to provide workload for the Vernon, California ammunition facility of Norris Industries. What is the status of that facility?

Answer. The Army plans to procure MLRS rocket motor cases and warhead metal parts with the fiscal year 1990 funds at Norris Industries. This buy combined with the 105mm deep draw cartridge cases maintains the Vernon facility at minimum sustaining production rate. Though this is the lowest production level for Norris Industries since Viet Nam, it continues to sustain them during these diminishing times.

*Question.* What impact will the fiscal year 1991 budget, including that for MLRS have on the workload and workforce of that facility?

Answer. FY 1991 budget request, including MLRS, will have an adverse impact on workload and workforce at the Norris Vernon facility. If Vernon was successful in obtaining all items that they compete for, workload would still be less than in FY 1990.

*Question.* What part does this facility play in the overall ammunition production base and what do you see as the future prospects for this facility?

Answer. This is a critical production base facility as are other COCO and GOCO facilities. Based on FY 1991 budget request and procurement of ammunition, Vernon and other plants will have to close if there is inadequate workload.

*Question.* Are you concerned? What are you doing about it?

Answer. Yes, we are concerned with the need to close production facilities. Because of the reduced requirements we are closing GOCOs and consolidating workloads at other facilities with like capabilities. A significant number of COCOs may be required to close and will be maintained to support mobilization requirements.

*Question.* Earlier this year, we learned that the Army was considering taking a major portion of the fiscal year 1990 cartridge procurement and signing a contract to produce cases using a new "spiral wrap" technique. What is the status of that proposal?

Answer. This proposal was reexamined by the Army with the decision to maintain our current mobilization base cartridge cse producer at about minimum sustaining production range of 300,000 to 340,000 cases per year.

*Question.* Has the spiral wrap case been field tested or type classified? If not, what are your plans in this regard?

Answer. The evaluation, safety and performance testing has been completed during the Product Improvement Program process. An Independent Assessment Report was published in March 1990 certifying safe and effective operation of spiral wrap cartridges cases. An In-Process Review is ongoing to support type classification approval during June 1990.

*Question.* What impact will proceeding with this proposal have on the workload at Norris Industries?

Answer. None. The Army's strategy in fiscal year 1990 is to maintain our current mobilization base producer. In the future, if the spiral wrap production method is successful as an economic alternative, Norris Industries will be afforded the opportunity to bid based on their prior spiral wrap production experience for the 105mm howitzer cartridge case during Viet Nam.

*Question.* General Greenberg, what does the Army expect to achieve from proceeding with this proposal?

Answer. The most significant breakthrough using this proposal is the estimated lower unit cost, between $5 to $10 per case. Other ancillary benefits are lower minimum sustaining rates; rapid production base expansion at lower investment costs; and a simplified production process with fewer machining operations.

*Question.* Could this proposal result in the establishment of yet another metal parts manufacturer at a time when the current base is struggling for business?

Answer. No, not necessarily. What we are developing is an alternative production process that we believe will lower production costs. If successful, this alternative process could be used by our current base producers and make them more competitive. There is little chance that this new process, by itself, would attract additional metal parts producers into the current base.

## CONTRACTING AT ARMY AMMUNITION PLANTS

*Question.* Normally, the Army uses cost-type contracts with contractor operators at Army Ammunition Plants. In a deviation from this practice, a fixed price contract was used for the most recent production contract at the Mississippi Army Ammunition Plant. Why was this change made?

Answer. Mississippi Army Ammunition Plant utilizes fixed price contracts to make the contractor responsible for both production and the mobilization capability of the plant. Fixed price contracts place all risk of contract execution on the contractor not the government.

*Question.* Has the Army used fixed price contracts for any other production orders at Army Ammunition Plants?

Answer. Yes, Scranton and Riverbank Army Ammunition Plants.

*Question.* How was the fixed price contracts at Mississippi structured?

Answer. Fixed price contracts at Mississippi Army Ammunition Plant were structured as follows: Production contracts are awarded on a basic ordering agreement that covers production of projectiles, grenades and the lap of the round. Included in the cost of production is maintenance of the equipment, maintenance of the roads and grounds, NASA charges, utilities, etc. There is also a fixed price contract for installation, debug and proveout of equipment brought for mobilization. There is also a small cost type contract for special projects, and ACO support.

*Question.* What has been your experience with the Mississippi contract? Are there any lessons learned?

Answer. The experience with the Mississippi Army Ammunition Plant contract is generally positive. The cost per round was dropped by one-third from the prior contract. The equipment was purchased, being installed, and proveout was on schedule prior to the contract termination. The main lesson learned is that changes such as termination are difficult and costly.

*Question.* Why should all production contracts at Army Ammunition Plants not be on a fixed price basis? What consideration is being given to this approach?

Answer. Fixed price contracts are usually not appropriate for plants with many productions/items or when many schedule changes occur. The plant and the government require flexibiity to meet different workload requirements in a short timeframe. Contract types at GOCO plants are reviewed annually.

*Question.* Would it be possible and/or desirable to separate the plant operations portions of existing contracts from production portions, with the latter continuing to be a cost basis?

Answer. Yes. It is possible to separate plant operations from production and the main benefit would be isolating and identifying actual zero based plant operational costs. The Army could write fixed price contracts and achieve economies. Production contracts could then absorb incremental operational cost proportional to the increased plan burden, instead of the entire cost of operations. Production contracts would, of necessity, be cost reimbursable due to the variable nature of burden versus production levels. In addition to lower fixed price operating contracts, the Army would realize lower unit ammunition costs. The down side would be accounting to keep operational costs paid on fixed price contracts from mitgrating to incremental costs paid on cost reimbursable production contracts.

## BUDGET PLANNING GUIDANCE

*Question.* The General Accounting Office is conducting its annual "budget scrub" of your ammunition budget. We received a set of preliminary fact sheets and questions from them last week, a copy of which was also supplied to your office. Their analysis indicates that in numerous instances, the Army has budgeted to produce ammunition which will result in the inventory being excess to requirements. Their analysis consists of taking the inventory as of September 30, 1990, adding items due in from fiscal years 1991 and prior year procurements, subtracting estimated usage through the fiscal year 1991 funded delivery period, and comparing the result with the inventory objective. They estimate that for these types of reasons, you have overbudgeted by $124.2 million . You have had a chance to examine their analysis, What is your response?

Answer. We have received the General Accounting Office's (GAO) preliminary findings and are in the process of reviewing them. I stress that these are preliminary findings and represent the first step in a long review process we go through with the GAO each year. We have found that in some cases the GAO auditors have used an inventory objective substantially below that recognized by the Army. Using a low inventory objective makes it appear that we are overbought when in fact we may be either right on target or underbought. Also, while GAO looks at inventory, we on the other hand, must also consider the work load at our various production facilities and attempt to balance the workload to limit personnel turbulence. When there are small annual requirements, we may buy several years worth of selected items to obtain economic order quantities. Such strategies, that make good business sense, sometimes are viewed by the GAO as exceeding annual requirements. On the other hand, the GAO has identified several areas where "fact of life" changes since budget submission may require adjustment to the fiscal year 1991 procurement program. Once reviewed and discussed with the GAO, we will be in a better position to make recommendations to the Congress on any necessary adjustments.

## M203 155MM PROPELLING CHARGE

*Question.* The M203 Propelling Charge is the standard long range charge for the Army's 155mm artillery system. In fiscal year 1990, the Army budgeted $106.26 million for procurement of these charges. Congress appropriated $15.0 million and stipulated that an additional $19.3 in unobligated production base funding could be used. The reduction was made as a result of delays in the production of the propellant sticks from Radford Army Ammunition Plant.

What is the status of this program?

Answer. The M203 program is on schedule as depicted in FY 1991 President's Budget Submission. Production has been steady at 21,000 charges per month.

*Question.* What has been the recent stick propellant production experienced at Radford and how does this compare to the required production rate?

Answer. Radford has maintained production at 500,000 pounds per month for the last 10 months. This is the planned production rate required to produce the 21,000 M203 Propelling Charges per month and clear up the production backlog.

*Question.* What are your plans for use of the $19.3 million in unobligated production base funding for this program?

Answer. The Army is in the process of requesting approval to reprogram the $19.3 million to procure additional M203 Propelling Charges.

*Question.* Are additional funds needed in fiscal year 1990 in order to avoid a production break?

Answer. Yes, additional funds are needed to avoid a production break. Maintaining continuous production requires a minimum sustainment rate of 8,400 rounds per month for a total of 14 months. This requires 117,600 rounds at an estimated total cost of $70.4 million, which is $51.1 million more than is currently available.

*Question.* If so, what are your plans for proposing a reprogramming?

Answer. The Army has added this funding requirement ($51.1 million) to the $19.3 million made available by Congress, and is requesting approval to reprogram the total $70.4 million into the FY 1990 procurement of the M203. The funds being requested for reprogramming are from fiscal year 1988 unobligated Provisions for Industrial Facilities and Copperhead funds, and from FY 1989 unobligated RDX funds.

*Question.* The fiscal year 1991 budget includes no funding for this program. Why?

Answer. Army funding decisions affecting the fiscal 1991 M203 program were being made at the same time Congress was considering funding the fiscal year 1990 program. Due to the production back log, the Army could not produce the FY 1990 program within Funded Delivery Period and decided to cancel its FY 1991 program. Congress, for the same reason, cancelled the FY 1990 program to compensate. The impact was a double elimination resulting in a projected break in production.

*Question.* What will be the impact of the 1991 budget on the producers involved in this program?

Answer. If the requested reprogramming action is approved, the lack of a fiscal year 1991 program will have no impact on the producers. However, if it is not approved, there will be a 12 to 14 month break in production that will cause a shut down of production at Indiana AAP (loss of about 180 jobs), shut down of stick propellant production at Radford AAP (loss of about 400 jobs), and a reduction in the production of combustible cartridge cases at ARMTEC Corporation (loss of about 60 jobs) in the September 1991 timeframe.

*Question.* What will be the impact of the 1991 budget on the balance between propellant charges and projectiles?

Answer. The balance between propellant charges and projectiles assuming the reprogramming request is not approved and fiscal year 1991 M203 program remains unfunded, is as follows:

[In thousands of charges]

| | Fiscal year— | | |
|---|---|---|---|
| | 1989 | 1990 | 1991 |
| Budgeted | 274 | 29 | 0 |
| Requirement | 755 | 999 | 1134 |
| Assets | 649 | 664 | 653 |
| Posture | −106 | −335 | −481 |

*Question.* What funding level in fiscal year 1991 would be necessary to avoid a production break and support a funded delivery period?

Answer. Without reprogramming approval for the $19.3 million Congress has already made available, a fiscal year 1991 program will not avoid a break in production. Given this approval, then an M203 program of approximately $53 million (100,800 charges) would be needed to avoid a break in production.

*Question.* For the record, provide the monthly delivery schedule for the M203, by fiscal year program, for all undelivered orders.

**Answer.** The delivery schedule for all undelivered orders of the M203 propelling charge is as follows:

[All quantities in thousands]

| | Fiscal year— | | |
|---|---|---|---|
| | 1988 and prior | 1989 | 1990 |
| 1990: | | | |
| April | 21 | | |
| May | 10 | 11 | |
| June | | 21 | |
| July | | 21 | |
| August | | 10 | |
| September | | 21 | |
| October | | 21 | |
| November | | 21 | |
| December | | 17 | |
| 1991: | | | |
| January | | 17 | |
| February | | 20 | |
| March | | 20 | |
| April | | 21 | |
| May | | 21 | |
| June | | 21 | |
| July | | 21 | |
| August | | 5 | 8 |
| September | | | 21 |

## ARTILLERY TIME FUZES

*Question.* In fiscal year 1989, Congress appropriated the initial funding for the M762 electronic time fuze. The Army hopes to replace the M577 mechanical time fuze with this "state of the art" fuze. In appropriating an additional $40 million for electronic time fuzes last year, the conferees cautioned the Army that no commitment was being made to this program until the Army could demonstrate its producibility and cost-effectiveness. What is the status of the electronic time fuze program?

**Answer.** Following the recent resolution of a protest action, the M762 ET fuze producers are engaged in the pre-production evaluation effort. Government and contractor personnel are also evaluating a proposed production schedule based on a five-month slip in the execution of the original program milestones. Although first deliveries of the M762 ET fuze have been delayed until September 1991, technical risk associated with M762 production is considered low.

*Question.* The Committee has expressed its intention that mechanical fuzes continue to be produced until the electronic time fuze is demonstrated to be cost-effective, producible and effective. What is the Army doing to carry out this intent?

**Answer.** The Army has exercised a contract option with Bulova, the MT fuze producer, which will assure continuous production of M577 fuzes while the Army evaluates cost, producibility and effectiveness associated with the initial ET fuze deliveries.

*Question.* Given the delays in the electronic time fuze contract, what plans does the Army have to reprogram funds for additional mechanical fuze procurement?

Answer. At this time, no reprogramming of funds is planned to procure additional MT fuzes. In light of the recent option award for additional MT fuzes and the low technical risk associated with the oncoming ET fuze program, the Army believes that the procurement of more MT fuzes cannot be justified.

*Question.* Under the current program, when will the last mechanical fuze be produced?

Answer. Based on the latest M577 contract schedule, the last MT fuze will be produced in October 1991.

*Question.* What are the current milestones for deliveries, initial production testing, and a full production decision for the electronic time fuze?

Answer. The following milestones are forecast for the M762 Program:

| | |
|---|---|
| Preproduction evaluation completed | June 1990 |
| First article/production qualification test completed | May 1991 |
| First article approved/full production decision | June 1991 |
| First production lot delivered | September 1991 |

*Question.* What is the current procurement strategy for the electronic time fuze and what strategy will be used specifically for the fiscal year 1991 procurement?

Answer. The initial years of M762 procurement are devoted to establishing the ET fuze production base utilizing the two selected producers. The fiscal year 1991 procurement will initiate a planned multi-year procurement to further establish the two current contractors as mobilization base producers. If the fiscal year 1991 programmed buy exceeds the capacities of the two producers, the excess quantities will be opened to competition to expand the mobilization base.

*Question.* The last procurement of the mechinical time fuze resulted in a unit cost of $35. How does this compare to the prices bid on the electronic fuzes?

Answer. With the award of the M762 competitive contracts, the price gap between the MT and ET fuzes has closed considerably. The unit cost of the FY 1989 MT fuze contract was approximately $38, however, the FY 1989 procurement option resulted in a unit cost of approximately $51. By comparison, the M762 ET fuze unit cost is approximately $115 based on initial quantity of only 161,000 fuzes split between the two producers. A unit cost of approximately $66 was proposed for the first year option quantity of 418,000 electronic time fuzes.

*Question.* What unit costs are included in options on the current electronic time fuze contracts?

Answer. The current contracts contain options to the first year procurement for a quantity of 418,000 fuzes. Based upon a split award, the unit cost is approximately $66.

## LIGHTWEIGHT MULTIPURPOSE WEAPON (AT-4)

*Question.* The budget includes $16.642 million for procurement of 11,000 AT-4 lightweight multipurpose weapons. Last year, you were anticipating that fiscal year 1990 would be the last year of procurement for AT-4. What caused the change?

Answer. The Army's Fiscal Year 1991 program was originally designed to be a "buy out" with the objective of supporting other service buys, and providing several years of Army training needs. However, due to cost constraints the other services were forced to cancel their buys.

*Question.* The AT-4 was originally procured from the Swedish developer. Production has now transitioned to a U.S. facility. How many U.S. manufactured weapons have been delivered to date?

Answer. Approximately 12,300 U.S. produced weapons have been accepted for delivery as of the end of March 1990, this includes the 2,300 weapons for Low Rate Initial Production.

*Question.* What are the results of first article tests and lot acceptance tests for the U.S. weapons?

Answer. After initial failure of the first two production lots, three new lots (10,000 units total) have been accepted.

*Question.* The 11,000 units requested is less than the mimimum production rate for two months at the U.S. facility? How can such a progam be executed?

Answer. A contract can be negotiated to continue the Fiscal Year 1990 production for another month and a half at approximately the same unit price as the Fiscal Year 1990 buy.

*Question.* What production rate has been demonstrated to date at the U.S. facility?

Answer. Although the sustained production rate has not yet been demonstrated, our estimate of substained production rate is 8,000 weapons per month.

*Question.* How many weapons would be required to have a minimum sustaining rate and what would that cost?

Answer. A minimum sustaining rate is 5,000 units/month or 60,000 per year. The cost of this many units would have to be negotiated with the contractor, but our rough estimate is $1,000/unit or $60.0 million.

*Question.* Where does this program stand in the 1992 Program Objective Memorandum (POM) deliberations currently underway?

Answer. Because of its relatively high sustainability posture, the Army does not plan to buy additional AT-4s after Fiscal Year 1991.

*Question.* After the fiscal year 1991 weapons are delivered, what will be the Army's inventory of this weapon, and how does this compare to the inventory objective?

Answer. Assets after the fiscal year 1991 buy will be approximately 87 percent of the Army inventory objective.

*Question.* How many AT-4's are consumed each year in training?

Answer. Approximately 8,000 rounds per year are used in training.

*Question.* What was the experience with the use of the AT-4 in Panama?

Answer. The AT-4 performed as designed in Panama. The users expressed satisfaction and were complimentary, but noted the need for a bunker destroying capability.

*Question.* The Army has been developing the Multi-Purpose Individual Munition (MPIM) to replace the AT-4 and the LAW. What is the status of the MPIM program?

Answer. The Congress has appropriated $5.5 million in fiscal year 1990 to complete Proof-of-Principle (POP) and to downselect a contractor for Full-Scale Development (FSD). The Army requires $86.5 million more to complete FSD.

*Question.* Without the MPIM program, what are the Army's plans for replacing the AT–4? Does the Army consider the AT–4 satisfactory for the foreseeable future?

Answer. The Army user needs a multi-purpose weapon. Without MPIM, Army will continue to search for a weapon that meets that requirement. In the interim, the Army will use the AT–4.

*Question.* What would it cost to complete the development of the MPIM to the point of production?

Answer. After completion of POP and downselection, $86.5 million is needed to complete FSD.

*Question.* What is the estimated unit cost of the MPIM?

Answer. The Design to Unit Production Cost (DTUPC) is presently estimated at $1,481, however, the project manager is still working on a Baseline Cost Estimate (BCE).

*Question.* What is the obligation status of the funds appropriated last year for MPIM development?

Answer. No funds were appropriated for MPIM development in fiscal year 1989. However, approximately fifty-two percent of the fiscal year 1990 funds have been obligated.

## M900E1 105MM TANK AMMUNITION

*Question.* The budget includes $67.0 million for procurement of 44,000 rounds of the M900E1 105mm tank ammunition. Last year, a significant reduction was made to the budget for this program because of technical problems. Have the fixes to all technical problems been demonstrated and approved?

Answer. This improved 105mm kinetic energy tank service round has overcome the technical target impact dispersion (TID) and gun pressure problems delaying type classification. Successful verification test performance and independent evaluation resulted in the Army test and user communities approving type classification low rate production (TC–LRP) on December 21, 1989.

*Question.* Last year you planned to award the fiscal year 1989 contract sole source to the developer using cost contract. Future contracts were to be on a competitive, fixed price basis. What are your current plans and why have they changed?

Answer. We still plan to award the low rate initial production buy to the developer using a sole source cost plus award fee contract. Since the type classification milestone dates had slipped and the programs were decreased in fiscal years 1989 and 1990, we will combine the fiscal years 1989 and 1990 buys in one solicitation.

*Question.* The combined 1989/1990 low rate initial production contract was to have been signed last month. What are the details of that contract and how do they differ from your budget estimates?

Answer. The combined fiscal year 1989/1990 contracts are underway and final awards are anticipated by May 1, 1990, which is a one month slip from our budget exhibitor submission. We have received the projectile and penetrator bid from Chamberlain Manufacturing, our developer contractor, on a sole source cost plus basis. This proposal is being reviewed.

*Question.* Why are you signing a procurement contract when development, test, and evaluation is not scheduled to be completed until September of this year?

Answer. This is our "Low Rate Production" contract being processed under the combined fiscal year 1989/1990 procurement. In order to provide our 105mm tank fleet an effective armor piercing round which over-match the expected threat, we are accepting some additional risk to field new tank ammunition at the earliest possible time. It means we accept the risk to enter low rate production while concurrently continuing development and operational testing to support type classification standard (TC-Std) approval. We are extremely confident that the technology and design freeze imposed by TC-LRP will meet all other test requirements satisfying TC-Std and eventually Material Fielding decisions. The potential advantages of rapid fielding outweights what we consider to be acceptable risk.

*Question.* You are currently authorized for a low rate initial production of 24,000 rounds, which have previously been funded. When will the Type Classification Standard decision be made?

Answer. Type classification standard (TC-Std) is planned for December 1990.

*Question.* What is the delivery period for the low rate initial production and what is the lead time for the fiscal year 1991 procurement?

Answer. Our current delivery schedule starts October 1990 and ends June 1991, but there may be three month delay. This is primarily due to the delivery of the high explosive low vulnerability propellant from Naval Ordnance Station. Even with this delay, deliveries will be within the funded delivery period and will not impact the fiscal year 1991 program. The fiscal year 1991 lead time is nine months and may be reduced to eight.

*Question.* General Greenberg, the budget unit cost for this round is $1522. What is the basis for this estimate? How realistic is it?

Answer. We based our unit cost estimates on historical data and production costs of similar kinetic energy rounds with the same complexity factors. In addition, we used production and cost data from other development and production contractors of similar KE rounds. We believe our cost estimates are very realistic and the actual costs will be within five percent.

## M830E1 120MM CHEMICAL ENERGY ROUND

*Question.* The budget includes ——— million for the initial procurement of ——— of the M830E1 120mm tank round. Describe this round and how it is different from its predecessor.

Answer. This round has an aerodynamic designed projectile with unitary high explosive shape charge warhead and a discarding sabot that provides the tank crew both an light anti-armor and anti-helicopter capability. It is initiated by mechanical base fuze which is activated by a nose switch closure in the "ground mode" or an electrical impulse set in the "air mode". The prevailing difference between the M830E1 and its predecessor are increased velocity provided by its aerodynamic design and discarding sabot; improved penetration and fragmentation of its unitary shape charge; and foremost the first ever "anti-helicopter" capability furnished by its proximity fuze.

*Question.* What are the current testing and procurement milestones?

Answer. Verification testing to support type classification low rate production (TC-LRP) begins in ———. Final developmental tests start in ——— concurrent with the scheduled TC-LRP decision in-process review (IPR). Type classification standard (TC-Std) is scheduled for ——— with initial operational capability planned for ———. This tank round is developed under the Armament Enhancement Initiative (AEI) program which fields at the earliest possible time new munitions concurrent with specific development and testing milestones.

*Question.* What are results of tests to date?

Answer. We have completed dispersion, armor penetration, limited live, and cartridge function testing with sufficient confidence that all requirements are met. These results supported the decision to "freeze" the design and authorize manufacturing of rounds for verification testing.

*Question.* What is the procurement strategy?

Answer. The acquisition strategy is sole source procurement for the low rate initial and first year production to the development contractor, Honeywell, Inc. This strategy poses low risk procurement through the first year of production and affords the system contractor ample time to amortize the facility investment. After these initial buys, procurement will be open to any qualified system contractor.

*Question.* This multi-purpose round has air defense capability. Is this the first time that such a capability has been given to a tank round?

Answer. Yes, this breakthrough is achieved through the round's higher velocity and proximity fuzing yielding a higher probability of hit.

*Question.* What technical attributes of this round give it the air defense capability?

Answer. The technical attributes yielding this anti-helicopter capability are reduced time in flight through higher velocity; lower drag by aerodynamic shape; and increased probability of hit with the proximity nose sensor and improved fragmentation warheard.

*Question.* How would tanks acquire an air threat target to use this round?

Answer. Present tank fire control systems allow our tanks to acquire helicopter targets. We will enhance this capability with future fire control systems including the decoupled reticle sight, currently under development, and follow on dual axis optical sight.

*Question.* Why is this capability needed?

Answer. The user has identified a significant anti-tank helicopter threat facing our tank fleet in the air-land battle scenario.

*Question.* What are the out-year funding projections for this round?

Answer. The Army Program Objective Memorandum (POM) is under development. Future funding is under review at this time.

*Question.* Compare the unit cost of this to that of the M830 and justfy the difference?

Answer. The projected unit cost for this round at mature production is about ——— more than the M830. This is primarily due to the two design innovations which are the discarding sabot and proximity sensor on the nose allowing the round to hit and defeat both air and ground targets.

## M829A1 120mm Kinetic Energy Round

*Question.* The budget includes ——— million for procurment of ——— rounds of the M829A1 kinetic energy round. Round has been funded in procurement for three years. What is the status of this program?

Answer. This round is in full production at present. A second systems contractor, Olin Ordnance, has been qualified. Deliveries are behind schedule by about two months. We project that deliveries will be back within funded delivery period by September 1990.

*Question.* What have been the results of inital production test and lot acceptance testing?

Answer. There were no initial production test conducted for this round. All lot acceptance tests (LAT) to date met all requirements. Although, some ambient temperature velocity and target impact dispersion (TID) tests have been marginal. "Full" material release has been approved for all rounds delivered to date.

*Question.* What is the procurement strategy in fiscal years 1990 and 1991?

Answer. For fiscal years 1990 and 1991, procurement strategy is limited competition between the two system contractors, Honeywell, Inc. and Olin Ordnance, using fixed price method. The basis for selection will continue to be minimum overall cost to the Army.

*Question.* What are the out-year funding projections for this round?

Answer. The Army Program Objective Memorandum (POM) is under development. Future procurement profiles are under review at this time.

## XM913 105mm Artillery Projectile

*Question.* The budget includes $15.6 million for the procurement of 34,000 XM913 high explosive rocket assisted 105mm artillery projectiles. Last year, $8 million was appropriated for the first procurement of this projectile. Last year we were told that technical tests would be completed in January, 1990 and type classification would be completed in March, 1990. What are your current expectations and why have they changed?

Answer. The current schedule for the Cartridge, Artillery, 105mm, High Explosive Rocket Assisted (HERA), XM913 reflects completion of technical testing in July 1990, with type classification in September 1990. This is an additional six months slip in the program. Since last year we have experienced problems developing a pyrotechnic delay mix composition that yields consistent mean and standard deviation burn time. The timing of this delay, which ignities the projectile's rocket motor, is critical to the accuracy of the round. We have assembled a special team to resolve this program and expect to have it fixed this summer and tested by July 1990.

*Question*. When will the fiscal year 1990 production contract be executed?

Answer. Due to the delay in type classification, the Army has decided to cancel its fiscal year 1990 XM913 program and work with the Congress to restructure its FY91 program to compensate.

*Question*. Provide for the record the monthly delivery schedule for the fiscal years 1990 and 1991 programs.

Answer. The Army has decided to cancel its fiscal year 1990 XM913 program and restructure the fiscal year 1991 program to compensate. The final production schedule will depend on the Army's success in accomplishing this restructuring. We anticipate having the restructing completed and a revised production schedule completed in the June/July 1990 time frame.

*Question*. What is the procurement strategy for this round?

Answer. The current strategy calls for a combination of full and open competition and sole sourcing. The strategy is being updated, since the Army plans to restructure its fiscal years 1990 and 1991 programs. The update will be completed in the June/July time frame.

*Question*. Who will make the various components and do the load, assemble, and pack?

Answer. The current strategy calls for the projectile warhead, cartridge case, and rocket motor body to be procured through full and open competition. The propellant grain and ignitor delay is to be split between Talley Defense Industry, and full and open competition. The pyrotechinic delay mix will be contracted to Lone Star AAP; and Load, Assembly and Pack to Indiana AAP.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, MARCH 14, 1990.

## MARINE CORPS PROCUREMENT/RESEARCH AND DEVELOPMENT

### WITNESSES

**LT. GEN. J.R. DAILEY, U.S. MARINE CORPS, COMMANDING GENERAL, MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND**

**E.T. COMSTOCK, FISCAL DIRECTOR OF THE MARINE CORPS, HEADQUARTERS, U.S. MARINE CORPS**

### INTRODUCTION

Mr. DICKS. This morning the committee considers the research and development and procurement budget for the Marine Corps. The principal witness is Lieutenant General J.R. Dailey, Commanding General, Marine Corps Research, Development, and Acquisition Command. General, this is your first appearance before the committee in your capacity as Commanding General, and we welcome you. We will place your complete prepared statement in the record. Please summarize it now and then we will proceed to questions.

### SUMMARY STATEMENT OF GENERAL DAILEY

General DAILEY. Thank you.

I might start by introducing Mr. Comstock, the Fiscal Director of the Marine Corps, who will assist me in the hearing.

It is an honor for me to present the Marine Corps program this morning. We have tried to focus on the over-the-horizon capability that we deem to be necessary for amphibious operations in the future. The budget reflects a concentration on improving readiness and our ability to conduct over-the-horizon assault through the Advanced Assault Amphibian (AAA) program. This is our number one ground R&D project. It will replace the current amphibian tractor.

Another area we are very concerned about is mine detection and clearing. We have programs in R&D to detect shallow water mines and also to clear them.

There is an advanced technology transfer program contained in this budget which will enable us to give exposure of R&D projects to the Fleet Marine Forces to get their input early in the program before we go into the actual development process. For the land warfare, and maneuverability and mobility on aspects of conducting operations ashore, we have variations aspects of conducting operations ashore, we have variations of the light armored vehicle, that we call the LAV-105, which is the assault gun variant and the LAV-AD which is the air defense variant.

The emphasis on the communication, command and control for the over-the-horizon capability focuses on our digital backbone and the unit level circuit switch to give us interoperability for joint and combined operations which will be necessary for operations in the future.

That concludes my remarks and I am ready for your questions.

[The statement of General Dailey follows:]

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BY THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF

LIEUTENANT GENERAL J. R. DAILEY

UNITED STATES MARINE CORPS

COMMANDING GENERAL

MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND

BEFORE THE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

CONCERNING

MARINE CORPS ALLOCATION OF
RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY

AND

PROCUREMENT, MARINE CORPS APPROPRIATIONS

NOT FOR PUBLICATION UNTIL RELEASED
BY THE HOUSE APPROPRIATIONS COMMITTEE

## LIEUTENANT GENERAL JOHN R. DAILEY, USMC

Lieutenant General John R. Dailey is the Commanding General, Marine Corps Research, Development, and Acquisition Command (MCRDAC), Washington, D.C.

General Dailey was born February 17, 1934 in Quantico, Virginia and commissioned a second lieutenant upon graduation from the University of California at Los Angeles in June 1956. He completed The Basic School prior to flight training and was designated a Naval Aviator in July 1958. His operational experience includes over 6,000 flying hours in fighters; light attack, reconnaissance, and electronic warfare aircraft; transports; and helicopters.

In 1972 General Dailey served as Commanding Officer, Marine Composite Reconnaissance Squadron-1, and also commanded a Carrier Task Unit supporting combat operations in North Vietnam. During two tours in Vietnam, he flew 450 combat missions. Returning from overseas in May 1973, General Dailey was assigned to the Aviation Weapons Requirements Branch, Headquarters Marine Corps, Washington, D.C. In 1975 he entered the National War College and, after graduation, returned to the Aviation Plans and Programs Branch at Headquarters Marine Corps.

In 1978 General Dailey took command of Marine Aircraft Group-11, 3d Marine Aircraft Wing, Marine Corps Air Station, El Toro, California. Then in July 1980 he assumed new duties as Chief of Staff, 3d Marine Aircraft Wing. He returned to Headquarters Marine Corps in July 1981 and was assigned as Head, Aviation Plans, Programs, Budget and Joint Doctrine Branch. After promotion to brigadier general in May 1982, General Dailey assumed the position of Assistant Deputy Chief of Staff for Aviation. In May 1985 he took command of the 1st Marine Amphibious Brigade, Kaneohe Bay, Hawaii.

General Dailey was promoted to major general on June 12, 1986, and took command of the 2d Marine Aircraft Wing, Fleet Marine Force, Atlantic, Marine Corps Air Station, Cherry Point, North Carolina. He was assigned duty as the Commandant, Armed Forces Staff College, Norfolk, Va., on July 30, 1987. General Dailey assumed his current assignment on August 21, 1989. He was nominated by the President for appointment to the grade of lieutenant general on Oct. 20, 1989. He was promoted to that grade on Nov. 24, 1989.

General Dailey's personal decorations include: the Defense Superior Service Medal; Distinguished Flying Cross; the Bronze Star Medal; Meritorious Service Medal; Air Medal with Numeral 1 and bronze Numeral 22; the Navy Commendation Medal with Combat "V"; and the Combat Action Ribbon.

Lieutenant General Dailey and his wife, the former Mimi Rodian of Copenhagen, Denmark, have a daughter, Lisa, and a son, Nils.

# PREPARED STATEMENT OF LIEUTENANT GENERAL J. R. DAILEY
# COMMANDING GENERAL
# MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND

## I. INTRODUCTION

Mr. Chairman, distinguished members of the committee, this is my first appearance before you as Commanding General of the Marine Corps Research, Development and Acquisition Command (MCRDAC). Thank you for the opportunity to present our fiscal year 1991 budget request for the Marine Corps' portion of the Navy's Research and Development Appropriation (RDT&E,N) and the Procurement, Marine Corps (PMC) appropriation.

Although our budget is austere and compact, it provides our expeditionary air-ground forces with weapons systems and warfighting equipment required for a lighter, more flexible warfighting capability, and permits a formidable military response in the most likely spectrums of conflict. Our procurement investments are focused on equipment that not only has great operational capability, but high reliability and maintainability as well. They represent an outgrowth of thoughtful investments in research and development, and a recognition that reduced life cycle costs are critical for survival in the current fiscal environment.

Our acquisition process has been much improved by the formation of the Marine Corps Research, Development, and Acquisition Command (MCRDAC) which took place in fiscal year 1988. We are now fine-tuning and streamlining our organization with the realignment of the remaining Marine Corps systems managed by two Navy Systems Commands. This will facilitate unity of command even further in our acquisition organization. It is important to note that our progress and compliance with the Goldwater-Nichols Reform Act has been commended by the General Accounting Office.

Lines of authority are more clearly delineated between the program managers and me. With a concept-based requirements system, we are also vitally linked to counterparts in the Marine Corps Combat Development Command who are charged with expressing the requirements of the Fleet Marine Force. Solutions to operational deficiencies are first sought through revision of doctrine, structure, training, and tactics. When none of these options will suffice, our common goal is to find the most cost effective weapons systems and warfighting equipment available to meet the threat. This relationship grows stronger through the continuous interaction between program managers and requirements proponents.

We are also making a significant investment in the education of our program managers to ensure that we develop a knowledgeable and professional acquisition corps. We are taking maximum advantage of the opportunities provided by the Defense Systems Management College with the intent that all program managers be formally trained. They will form the nucleus of our professional acquisition force. These knowledgeable professionals will provide continuity and program stability.

## II. GOALS OF THE 1990s

Our goals for the 1990s include maintaining a highly trained, quickly deployable combat force capable of power projection from the sea. We are encouraged by democratic developments in Europe and lessening of tensions between the superpowers. We recognize that what has been achieved is in large measure due to the stabilizing influence of deterrence. We also acknowledge that large scale force reductions and growing movements of nationalism could result in foreign base closures and reduced access rights. While probability of large scale war seems greatly diminished, the likelihood of conflict at the lower end of the spectrum has high probability.

We envision a world where there will be much instability in emerging and third world nations. As we are observing now, even major powers will experience internal disorder created by challenges to old orders. There will be nationalistic movements and insurrections to displace incumbent governments. Some of these crisis will be challenges to our allies who will call for assistance. Terrorist groups will continue to damage property or kill innocent victims for media attention or political recognition. Territorial disputes may spill over boundaries and draw in other members of the international community. Some of these conflicts will threaten U.S. lives or strategic interests such as access to critical materials essential for the West's technology base. The destruction of societies resulting from the drug trade, and the significant economic influence and firepower which is wielded by the drug cartels, must be countered through a cooperative effort with our friends. All these situations will likely call for conventional response and the ability to get there quickly.

The presence offshore of forward deployed operating forces of the Navy and Marine Corps lends a significant contribution to deterrence through a show of strength. These forces which are capable of rapid reinforcement, demonstrate support for our allies, deter regional conflicts or prevent escalation, protect U.S. interests and lives, and preserve access to sea lines of communication and aerial transportways. This latter mission and maintaining maritime superiority, will become increasingly important as evolving and fragile democracies seek economic stability through reliance upon free trade and integration into the world marketplace. The requirement for a strong, maritime flexible response capability to the National Command Authority will become even more critical. Our expeditionary nature as well as our inherent flexibility in our maritime and geo-prepositioning programs allows us to reduce closure time and respond to a wide range of conflicts and crises worldwide.

Our objective is to ensure we meet any threat head-on with a quality fighting force equipped with the necessary weapons to ensure victory. We will be leaner and better prepared through our enhanced Marine Battle Skills Training Program. We will also be outfitted with up-to-date equipment which will serve as a force multiplier. In this regard, your support during the past decade has allowed us to replace obsolete and technologically inferior equipment. The task is not finished and we need your continuing support. Even the adversaries we may face in Third World Countries, as well as narco-terrorist groups, possess sophisticated, hi-tech weaponry such as hand-held surface-to-air missiles. We must seize upon the ingenuity of our scientific community to maintain our edge. We must concentrate on development and acquisition of economical and quality equipment which will provide the greatest leverage for future combat capability.

We recognize that we can no longer modernize at the same pace as in the 1980s. We will, of necessity, go slower and we will concentrate on maintaining the highest possible state of readiness. Our acquisition strategies will continue to emphasize innovation, quality, and competition. It is critical that we make sound business decisions in the application of our scarce dollars. We will have to make tough choices on how we equip and deploy our forces to meet the threat of 2000 and beyond.

## III. MARINE CORPS RESEARCH AND DEVELOPMENT

This portion of my statement will address the FY 1991 Marine Corps' allocation of the Navy's Research, Development, Test & Evaluation (RDT&E) budget request. This allocation is for Marine Corps ground equipment only. Last year you appropriated $262 million for the fiscal year 1990 Marine Corps RDT&E,N budget. Our fiscal year 1991 request is $299 million.

Research and Development (R&D) dollars represent an investment in our future. Through the acquisition streamlining process and the use of non-developmental items, we have significantly accelerated the acquisition process from inception to fielding.

We acknowledge that resources will be scarcer even though we do not expect the roles and missions of an expeditionary Marine Corps to diminish. That means we have to be smarter. The equipment we choose must be affordable, light, and highly mobile, and able to defeat any adversary. The equipment may be technologically complex but it must also be simple to operate and inexpensive to maintain and support throughout its life cycle. We are confident that a revitalized U.S. science and technology base, as well as industrial capability, will be able to respond to the nation's defense requirements.

Our primary emphasis in FY 1991 in development is focused on the Advanced Amphibious Assault (AAA) Program which will replace our current amphibian vehicle. The AAA is the only major ground weapon system development for the Marine Corps in the 1990s. Our FY 1991 budget requests $26 million for this purpose.

The AAA program is a critical step in gaining true over-the-horizon assault capability. The AAA will satisfy multiple mission area needs by providing the mobility, firepower and armor protection to embarked personnel during the ship-to-shore portion of the amphibious assault as well as subsequent operations ashore. A high water-speed amphibian demonstration vehicle has validated the concept of producing an amphibious vehicle capable of rapidly moving the assault elements and equipment of the Marine Air Ground Task Force from shipping located over the horizon to inland objectives. Tests have demonstrated that a lightly armored amphibian vehicle can attain speeds in excess of 25 knots in the water and 40 miles per hour over dry land. In conjunction with the AAA program, development continues on the Stratified Charge Rotary Engine - a powerful, lightweight, diesel engine with the potential application to the AAA and other military vehicles. Our FY 1991 budget requests $16.2 million for this program.

Even though the AAA program is our highest priority in development, we must continue to maintain the safety and survivability improvements to our current Amphibious Assault Vehicle, the AAV-7A1. Accordingly, we are requesting $10 million for these efforts.

We are also addressing the very real mine threat which exists across the entire spectrum of conflict. The budget request contains $28 million to continue development of the Catapult Launched Fuel Air Explosive (CATFAE) mine clearance system. This system will be mounted in an amphibian vehicle and have a capability against shallow water as well as land mines. To complement this program, we are also developing an airborne mine detection and survey system for shallow water mines.

The recent participation of Marines in "Operation Just Cause" has proven the worth of the Light Armored Vehicles (LAV) and reinforces its application in a wide range of scenarios. This light, deployable, and highly maneuverable weapons system is capable of arriving quickly and favorably influencing the outcome of the battle. To enhance the survivability and combat power of our Light Armored Infantry Battalions, we are asking for $23 million for the LAV 105 mm assault gun variant and $18 million for the LAV air defense variant. These systems are helicopter deployable and support our "light enough to get there and heavy enough to win" warfighting concept.

The Marine Corps developmental effort places great emphasis on command, control and communications interoperability with all

U.S. and Allied military forces. With regard to these requirements, we are requesting $9 million for the Joint Tactical Information Distribution System (JTIDS) to maintain ground tactical data links with U.S. and allied aircraft. Also, to avoid costly film processing and gain near real time digitized photographs from reconnaissance aircraft, we are requesting $16 million for the Joint Services Imagery Processing System (JSIPS). We are requesting $8.5 million to obtain near real time electronic intelligence from reconnaissance aircraft to the ground commander with the Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES). Finally, for fusion, analysis and dissemination of air and ground intelligence information, we are requesting $8 million for the Intelligence Analysis System software block upgrade.

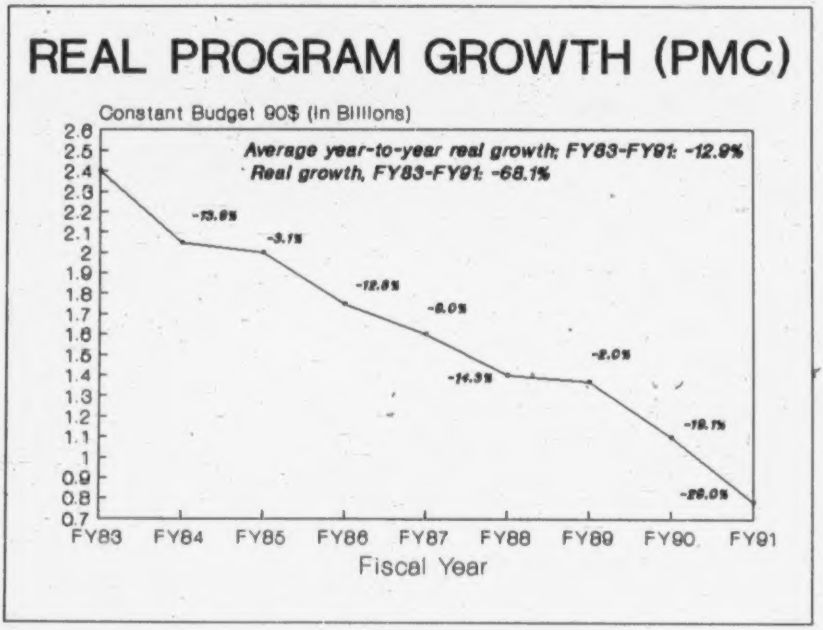
Your support through the Soldier-Marine Enhancement has provided funds for the continued development and procurement of more lethal infantry weapons and improved equipment for the individual Marine to include communications equipment and navigation aids. These programs will significantly enhance the warfighting capability and survivability of our Marines and your support in this area is sincerely appreciated.

Finally, a new Advanced Technology Transfer Demonstration (ATTD) program element is included for $15 million. This program allows exploitation of promising technologies and Fleet Marine Force influence of developmental starts for future capabilities. After successful technology demonstration, operationally-based requirements statements are then generated for candidates selected for transition to advanced development.

For approximately 3 percent of the Navy RDT&E budget request, we provide a strong, survivable and safe Marine Corps as we enter the new decade with low-to-mid intensity levels of conflict the most likely requiring over-the-horizon sea power projection ashore.

## IV. PROCUREMENT, MARINE CORPS

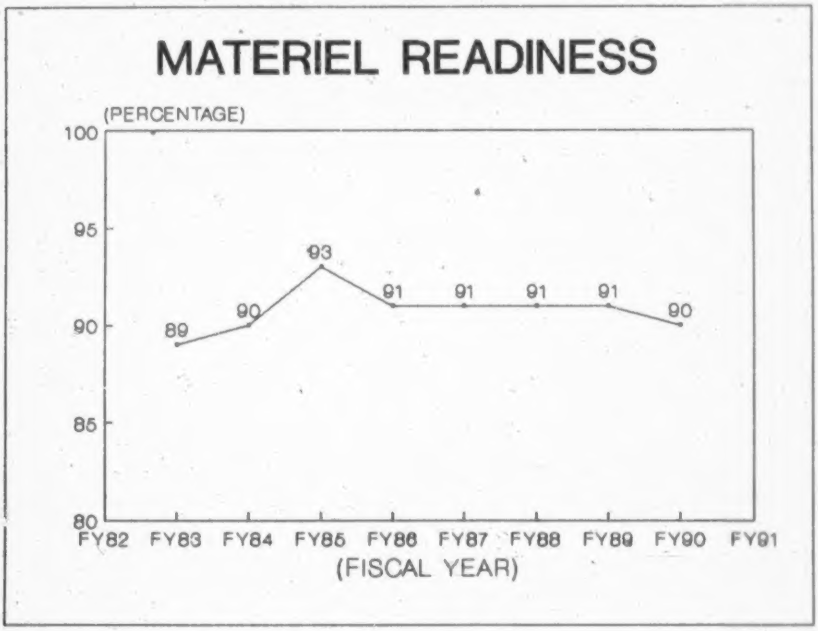
In fiscal year 1990, you appropriated $1.1 billion for Procurement, Marine (PMC). In fiscal year 1991, our request is for $782 million. Such a large decrease from last year more than emphasizes that a new fiscal reality is upon us. In light of the current austere situation, the following chart is provided to illustrate the negative real growth our procurement appropriation has experienced since fiscal year 1983.



## V. READINESS

Due to the investment in modernization in the 1980s, the Marine Corps has achieved and maintained a high state of readiness as depicted in the chart below. Obsolete and aging equipment was replaced with better and more reliable equipment. The decline in resources will necessarily contribute to some erosion of readiness. While this trend is likely to continue, the Marine Corps is committed to maintaining the highest readiness possible within anticipated constraints.

The chart illustrates materiel readiness for both the active and reserve forces at the end of each fiscal year. The last point depicts readiness at the end of the first fiscal quarter of 1990. Materiel readiness is directly affected by procurement and is a sub-element of total readiness. Materiel readiness consists of two fundamental components: the inventories of equipment and supplies on-hand related to wartime requirements; and the condition and ability of our hardware to perform its essential mission. We track our materiel readiness by focusing on 248 principal end items that fall into every type of commodity area.



## VI. PMC PROGRAM OVERVIEW

To provide a quick overview of our proposed fiscal year 1991 budget, the following charts depict the major programs, our restarts, and the programs we fully or substantially complete in fiscal years 1989/1990/1991.

### A. MAJOR PROGRAMS *
(Dollars in Millions)

| ITEM | FY 1991 |
|---|---|
| Ammunition | 285 |
| AAV7A1 PIP | 19 |
| MK-19 Machine Gun | 17 |
| Vehicle Mounted Radios | 56 |
| Unit Level Circuit Switch (ULCS) | 33 |
| Tactical Air Operations Module (TAOM) | 47 |
| Shelters | 15 |
| Containers | 15 |
| Spares | 70 |
| Other | 225 |
| TOTAL | 782 |

* $10 Million or Greater

### B. RESTARTS
(Dollars in Millions)

| ITEM | FY 1991 |
|---|---|
| 60MM HE, M888 | 5.7 |
| M732A2 Fuze, Proximity | 18.1 |
| XM762 Fuze, Electronic Time | 7.0 |
| XM767 Fuze, Electronic Time | 3.0 |
| 9MM, All Types | 3.8 |
| .50 Caliber Machine Gun | 4.2 |
| MK-19, 40MM Machine Gun | 17.2 |
| M876 Maintenance Truck | 4.9 |
| Electronic TMDE Repair Facility | 3.5 |
| Thermal Imaging Equipment | 3.5 |
| Trailers, All Types | 2.1 |
| Amphibious Assault Fuel System (AAFS) | 2.4 |
| Topographic/Survey Equipment | 3.8 |
| Lightweight Decontamination System | 3.6 |
| First Destination Transportation | 10.9 |
| TOTAL | 93.7 |

## C. PROGRAM COMPLETIONS

### FY 1989 COMPLETIONS

9MM Handgun
M16A2 Rifle
HAWK Missile
STINGER Missile
DRAGON II PIP
Marine Corps Automatic Test Equipment System (MCATES)
Simplified Test Equipment/ Internal Combustion Engine (STE/ICE)
Radio Test Set
Tactical Receiver Set
Advanced Narrowband Digital Voice Terminal/Tactical Terminal (ANDVT/TACTERM)
Radar Test Set
Logistic Vehicle System (LVS)
Forklifts
Bath Shower Unit
Fuel, Water Modules
Heavy Crane

### FY 1990 COMPLETIONS

Squad Automatic Weapon
M1A1 Tank
Spectrum Analyzer
Position Location Reporting System (PLRS)
Light Crane

### FY 1991 COMPLETIONS

.50 Caliber M-2 Machine Gun
Sweep Generator
Topographic/Survey Equipment
M-876 Maintenance/Telephone Truck
Lightweight Early Warning Detection Device (LEWDD)
Electronic Test Measurement and Diagnostic Equipment (TMDE) Repair Facility

## VII. DISCUSSION BY BUDGET ACTIVITY

### AMMUNITION

This year our ammunition budget accounts for approximately 36 percent of our total procurement request. In the past, we were able to put from 65-75 percent of our ammunition budget towards the Pre-positioned War Reserve (PWR) inventory and used the remainder for training, including both live and practice rounds. However, since fiscal year 1990, we have put less than 45 percent of our ammunition budget towards the PWR inventory. Even though the Marine Corps' total obligational authority is declining, we have made a conscious decision to maintain our emphasis on realistic combat training in our Marine Battle Skills Training program. These enhanced training initiatives focus heavily on the extensive firing of individual and crew served weapons which are primary consumers of small arms ammunition. This consumption rate is considered acceptable in light of the Army's rapid surge capability for small arms ammunition in government owned plants. If in the future, because of fiscal constraints and increased training consumption, we are unable to allocate sufficient funds to support PWR at a reduced but tenable level, our training programs will have to be reassessed.

### WEAPONS AND COMBAT VEHICLES

As our Commandant has noted, the Marine Corps' focus on low-to-mid intensity conflict, which emphasizes light and easily transportable weapon systems, coupled with fiscal constraints, has caused us to terminate our M1A1 tank program after fiscal year 1990. However, we continue to place emphasis on the Product Improvement Program (PIP) of our current Amphibious Assault Vehicle (AAV-7A1) in fiscal year 1991. These planned product improvements and modifications will improve the reliability, battlefield survivability and combat capability of our fleet of AAVs. During the fiscal years 1990/1991 time period, we will complete the Upgunned Weapons Station, Bow Plane, Automatic Fire Sensing and Suppression System, we will further improve the AAV-7A1 with the addition of an Improved Transmission and Enhanced Applique Armor Kits.

Additionally, we are procuring the MK-19 40MM Machine Gun, a very effective weapon against personnel and light armored vehicles at ranges up to 1600 meters. This weapon will substantially increase the organic fire power of all Marine combat and combat support units. We are reprocuring sufficient quantities of the .50 caliber M2 machine gun to restore our inventory levels.

### MISSILES

We completed the procurement of our HAWK and Stinger missiles in fiscal year 1989. However, some remaining HAWK improvements are being procured in fiscal year 1991. We have been procuring TOW-2A missiles since fiscal year 1986 and started TOW-2B procurement in fiscal year 1990. TOW procurement will continue through fiscal year 1991. TOW-2A and TOW-2B are the only TOW variants that are effective against explosive reactive armor. The older TOW missiles will be consumed in training.

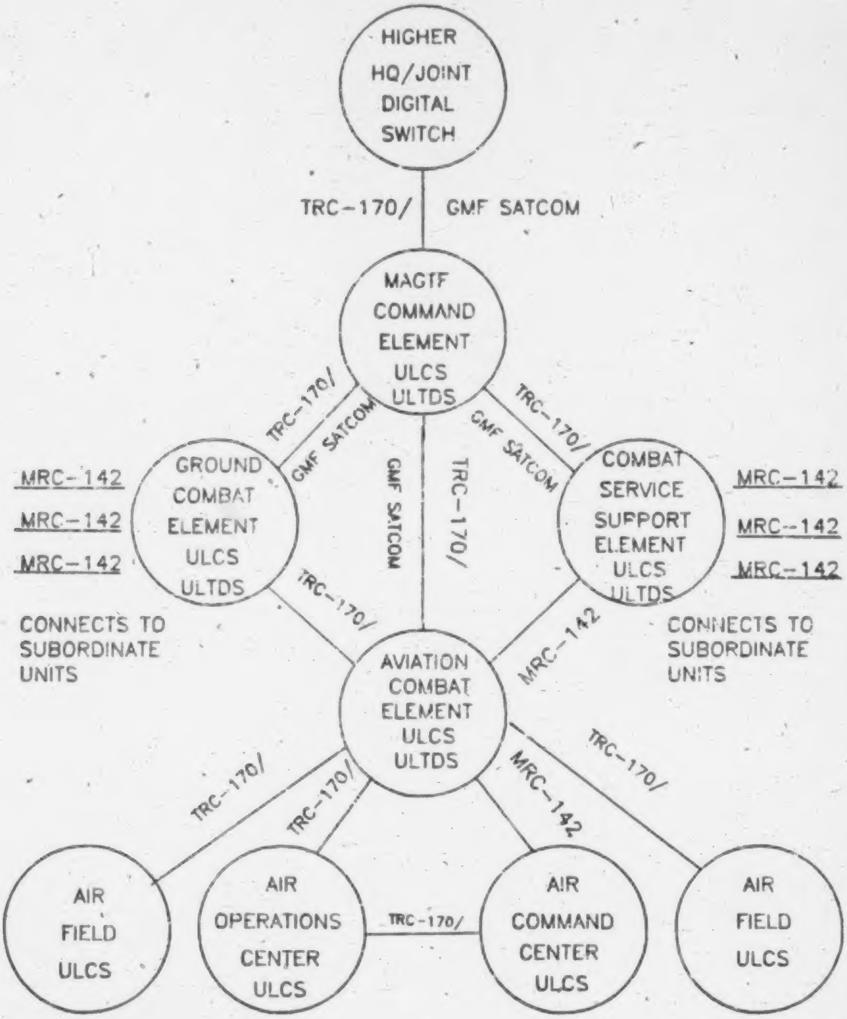
## COMMUNICATIONS AND ELECTRONICS

Our primary emphasis in this budget activity is the completion of the Marine Corps' "Digital Backbone" switching system. These procurements will replace aging, analog, non-secure fielded systems with more effective and reliable digital systems. These systems will ensure communications within all elements of the Marine Air-Ground Task Force (MAGTF) and interoperability between the Marine Corps and other service headquarters in joint or combined operations.

The major communications-electronics acquisitions in the "Digital Backbone" system are the Unit Level Circuit Switch (ULCS), the long range AN/TRC-170 Tactical Digital Troposcatter Radio, and the short range AN/MRC-142 (Formerly designated AN/MRC-139) Digital Wideband Transmission system. Ground Mobile Forces satellite communication terminals, which were procured with prior year funds and are already fielded, also provide long range connectivity between the switches in the Digital Backbone. This system is so important to us, that I would like to reintroduce the diagram we presented last year on the system.

The diagram below illustrates the network between the components of the digital backbone system. As you can see, the system is built around the ULCS with the long and short range radios connecting the headquarters to the ground, air, and support elements as well as connecting the individual elements to each other.

# MARINE AIR GROUND TASK FORCE GENERIC DIGITAL BACKBONE


HIGHER HQ/JOINT DIGITAL SWITCH
TRC-170/ GMF SATCOM
MAGTF COMMAND ELEMENT ULCS ULTDS
TRC-170/
GMF SATCOM
TRC-170/
GMF SATCOM
GMF SATCOM
TRC-170/
GROUND COMBAT ELEMENT ULCS ULTDS
MRC-142
MRC-142
MRC-142
COMBAT SERVICE SUPPORT ELEMENT ULCS ULTDS
MRC-142
MRC-142
MRC-142
TRC-170/
MRC-142
CONNECTS TO SUBORDINATE UNITS
CONNECTS TO SUBORDINATE UNITS
AVIATION COMBAT ELEMENT ULCS ULTDS
TRC-170/
TRC-170/
MRC-142
TRC-170/
AIR FIELD ULCS
AIR OPERATIONS CENTER ULCS
TRC-170/
AIR COMMAND CENTER ULCS
AIR FIELD ULCS

The Unit Level Circuit Switch (ULCS) is a family of joint, tactical automatic switching equipment that provides secure digital telephone communications and data to the Marine Air-Ground Task Force. This production effort continues on schedule. Initial Operational Capability for the ULCS is still scheduled for late 1990.

The successful interconnection of these switching nodes depends on the digital wideband radio transmission systems which will carry the high volume digital signals from location to location. As noted above, the two systems currently in the FY 1991 budget designed for this purpose are the long range AN/TRC-170 radio and the short range line-of-sight AN/MRC-142 radio.

The AN/TRC-170 is a super high frequency troposcatter radio set which will provide a digital wideband transmission path for ranges up to 100 miles. It and the Ground Mobile Forces Satellite Communication terminals will provide the multichannel connection between the Marine Air Ground Task Force Command Element and the Commander-in Chief (CINC)/Joint Task Force Headquarters as well as between the MAGTF Command element and the major subordinate ground, air, and combat service support command elements of the MAGTF. Within the Aviation Combat Element, the AN/TRC-170 is the primary transmission means for passage of air command and control information between the Tactical Air Command Center and the Tactical Air Operations Center. The AN/TRC-170 has been in production since 1982 when the U.S. Air Force signed the first contract to buy systems for itself and the U.S. Army.

The AN/MRC-142 is the short range line-of-sight multichannel radio set which will provide secure voice and data links between digital switches at ranges of up to 35 miles for major MAGTF command elements and their subordinate elements. This program is an excellent example of streamlined acquisition. Using a two phase Non-developmental Item (NDI) approach, two contractors were selected from qualified bidders to build and deliver prototypes for a performance competition during phase one. The government has already negotiated not-to-exceed production option prices from both contractors for phase two. The Fiber Optic Cable System (FOCS) will be used to connect switches to radios and also can be used as the primary connection between switches over relatively short distances.

The Tactical Air Operations Module (TAOM) is the other major procurement in this budget activity. The success of our TAOM program is attributable to cooperative Marine Corps-Air Force efforts to procure common and interoperable air control equipment to replace aging and obsolescent systems entering their third decade of service. When fully fielded, Marine Corps and Air Force TAOM equipped units will support joint, NATO and combined exercise and contingency operations well into the next century.

## SUPPORT VEHICLES

We have virtually replaced all of our obsolete tactical vehicle fleet over the last eight years. With the fiscal year 1991 budget request, we continue to procure trailers and progressively replace our aging commercial passenger and cargo vehicles. The only procurement restart is the M876 Maintenance Telephone/Utility Truck. The M876 will be used in the Marine Corps Communication Battalions and is designed to construct and maintain large-scale, rear-echelon military telephone and electric power systems.

## ENGINEER AND OTHER EQUIPMENT

We continue to replace various types of over-aged engineer equipment. This equipment will provide our forces with increased mobility, individual and equipment protection, and the necessities of life such as potable water.

We are requesting funds to buy environmental control and power equipment, tactical fuel systems, lightweight decontamination equipment, shelters, containers, base support equipment, and training devices/simulators with increased emphasis on combat training. The importance of these items to combat effectiveness is often overlooked.

## VIII. RESERVE FUNDING

As we have stated many times in the past, the Marine Corps Reserve provides the capability for rapid expansion of our forces during an emergency. The reserve adds a vital dimension to the Marine Corps' ability to respond to a crisis requiring mobilization and is an integral partner with the active forces. All our acquisition objectives reflect active and reserve requirements concurrently. This includes initial issue quantities and planned sustainability for reserve units which would deploy in the near term.

## IX. CONCLUSION

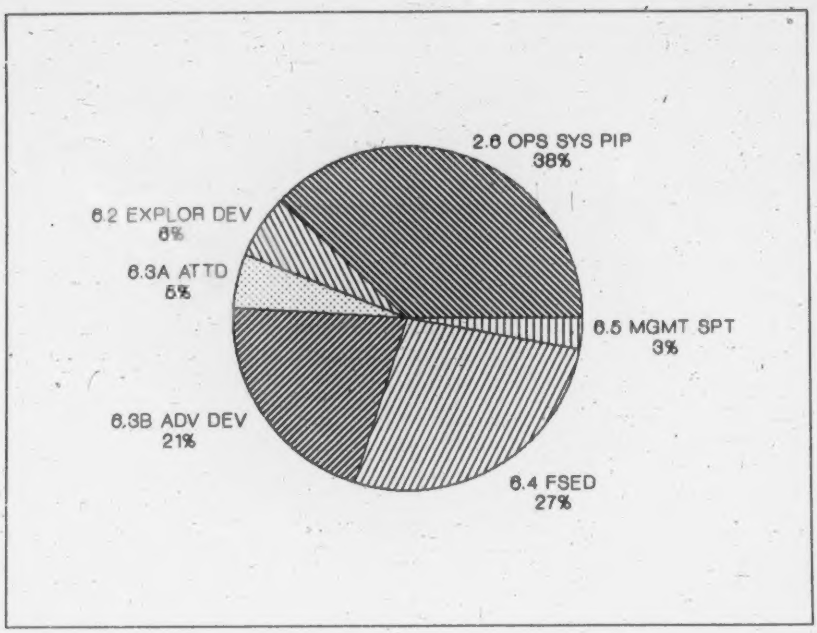
The Marine Corps' primary overall goal is readiness for combat. Maintaining this readiness is key to responding to the crises of the future. Over the past eight years, we have modernized and are ready for any challenge. In the near term, the equipment we are developing and buying will maintain the required readiness and enhance our capability for forcible entry and sustainment of combat forces in a hostile region. In the longer term, reduced resources will present a significant challenge for us in maintaining the capabilities necessary to meet future threats. The program we are presenting here today is an important step toward that future challenge. The visible presence of the Navy-Marine Corps team offshore has remained a significant deterrent and demonstrated our willingness to resolve crises diplomatically, politically, or as a last resort militarily. Our amphibious and expeditionary capabilities have always been our unique contribution to national security. We believe that our requests for research and development, and procurement funds in the fiscal year 1991 budget represent the minimum funding required to accomplish our overall goal. We look forward to your continued support of our unique mission as a strategic arm of U.S. national security policy. Thank you again for the opportunity to present our budget request before you today.

## X. DETAILED R&D/PMC FUNDING OVERVIEW

The attached pages provide a detailed funding overview of the Marine Corps' allocation of the Research, Development Test, and Evaluation, Navy (RDT&E,N) and the Procurement, Marine Corps appropriations for the fiscal year 1991 President's budget.

# MARINE CORPS RESEARCH, DEVELOPMENT, TEST & EVALUATION

## FISCAL YEAR 1991



(DOLLARS IN MILLIONS)

| | BUDGET ACTIVITY | FY 1991 | PERCENT TOTAL |
|---|---|---|---|
| 2.6 | OPERATIONAL SYSTEMS PIP | 114.1 | 38% |
| 6.2 | EXPLORATORY DEVELOPMENT | 18.1 | 6% |
| 6.3A | ADVANCED TECHNOLOGY TRANSFER DEMONSTRATIONS | 15.3 | 5% |
| 6.3B | ADVANCED DEVELOPMENT | 63.9 | 21% |
| 6.4 | FULL SCALE ENGINEERING DEVELOPMENT | 77.6 | 27% |
| 6.5 | MANAGEMENT SUPPORT | 9.7 | 3% |
| | TOTAL | 298.7 | 100% |

# MARINE CORPS RESEARCH, DEVELOPMENT, TEST & EVALUATION

## USMC RDT&E PROGRAMS

| | ($ IN MILLIONS)<br>FY 1991 |
|---|---|
| Advanced Amphibious Assault Capability (AAA) | 26.3 |
| Stratified Charge Rotary Engine (SCRE) | 16.2 |
| Amphibious Assault Vehicle (AAV-7A1) | 9.8 |
| Surf Zone Mine Clearing (Catapult Fuel Air Explosive) (CATFAE) | 27.9 |
| Light Armored Vehicle - Assault Gun (LAV-AG) | 22.9 |
| Light Armored Vehicle - Air Defense (LAV-AD) | 18.0 |
| Joint Tactical Information Distribution System (JTIDS) | 8.7 |
| Joint Service Imagery Processing System (JSIPS) | 16.0 |
| Tactical Electronic Reconnaissance Processing Evaluating System (TERPES) | 8.5 |
| Advanced Technology Transfer Demonstrations (ATTDs) | 15.3 |
| Position Location Reporting System (PLRS) | 8.4 |
| Joint Anti-Armor Weapons System (JAAWS) | 8.1 |
| Marine Corps Amphibious Warfare Technology Development | 18.0 |
| Other Programs | 94.6 |
| TOTAL | 298.7 |

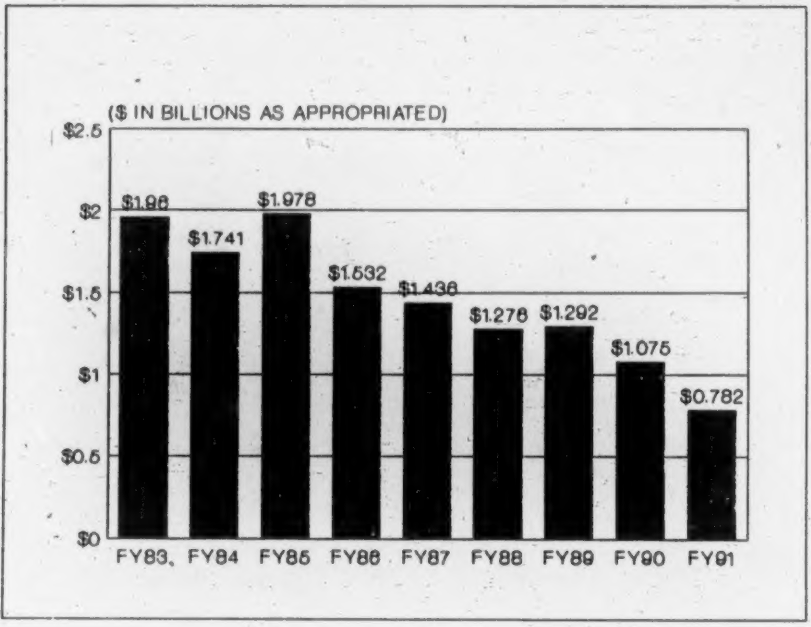
# USMC TOTAL OBLIGATIONAL AUTHORITY

## FISCAL YEAR 1991

| APPROPRIATION TITLE | (DOLLARS IN MILLIONS)<br>FY 1991 | PERCENT |
|---|---|---|
| MILITARY PERSONNEL, MARINE CORPS | 5,918.6 | 63.0% |
| RESERVE MILITARY PERSONNEL, MARINE CORPS | 336.4 | 3.6% |
| OPERATION & MAINTENANCE, MARINE CORPS | 1,948.1 | 20.8% |
| OPERATION & MAINTENANCE, MARINE CORPS RESERVE | 86.1 | .9% |
| PROCUREMENT, MARINE CORPS | 782.1 | 8.3% |
| FAMILY HOUSING, MARINE CORPS ALLOCATION | 137.5 | 1.5% |
| MILITARY CONSTRUCTION, MARINE CORPS PROJECTS | 142.0 | 1.5% |
| MILITARY CONSTRUCTION, MARINE CORPS RESERVE PROJECTS | 8.9 | .1% |
| STOCK FUND, MARINE CORPS | 25.6 | .3% |
| TOTAL | 9,385.3 | 100% |

## PROCUREMENT, MARINE CORPS

### TOTAL OBLIGATIONAL AUTHORITY

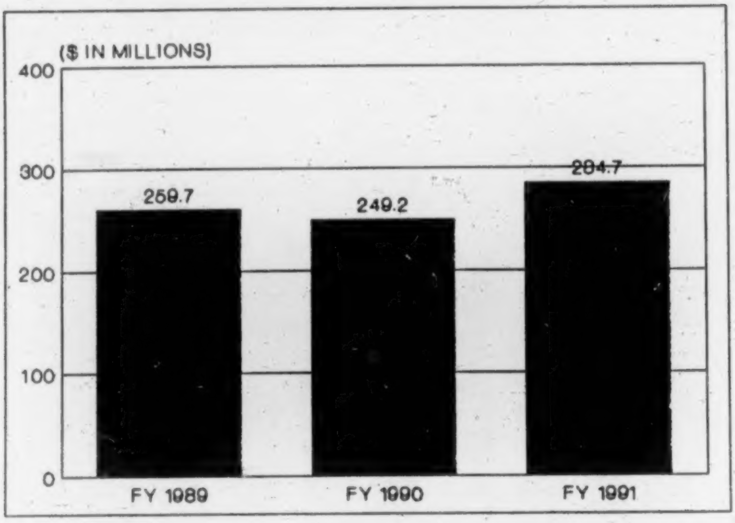


(DOLLARS IN MILLIONS)

| BUDGET ACTIVITY | FY 1989 | FY 1990 | FY 1991 |
|---|---|---|---|
| 1 - AMMUNITION | 259.7 | 249.2 | 284.7 |
| 2 - WEAPONS & COMBAT VEHICLES | 220.3 | 399.0 | 45.5 |
| 3 - GUIDED MISSILES & EQUIPMENT | 338.1 | 11.1 | 16.3 |
| 4 - COMMUNICATION & ELECTRONICS | 268.5 | 249.6 | 218.7 |
| 5 - SUPPORT VEHICLES | 27.8 | 22.6 | 34.1 |
| 6 - ENGINEER & OTHER EQUIPMENT | 120.9 | 81.8 | 112.4 |
| 7 - SPARE & REPAIR PARTS | 56.5 | 61.9 | 70.4 |
| TOTAL | 1,291.8 | 1,075.2 | 782.1 |

# PROCUREMENT, MARINE CORPS

## BUDGET ACTIVITY 1 - AMMUNITION

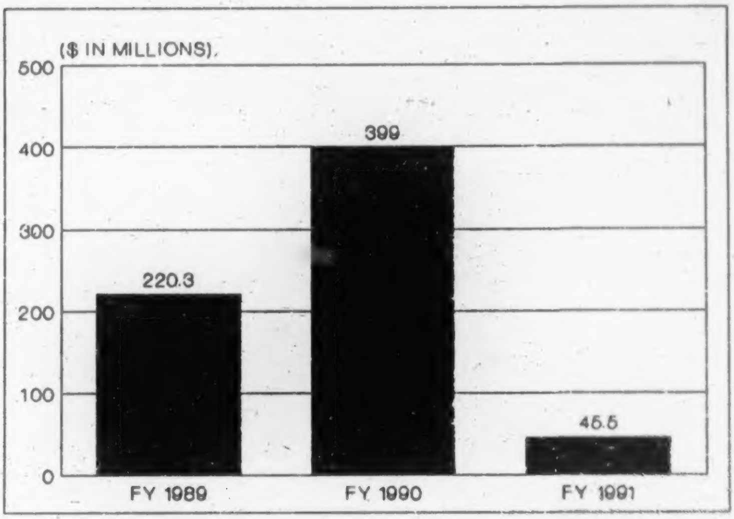


($ IN MILLIONS)

| NOMENCLATURE | FY 1989 AMOUNT | FY 1990 AMOUNT | FY 1991 AMOUNT |
|---|---|---|---|
| 5.56MM, ALL TYPES | 15.4 | 14.2 | 30.9 |
| 7.62MM, ALL TYPES | 5.3 | 4.1 | 8.3 |
| LINEAR CHARGES, ALL TYPES | 5.4 | 2.6 | 1.0 |
| .50 CALIBER | 6.7 | 15.0 | 19.5 |
| 40MM, ALL TYPES | 22.1 | 22.5 | 25.6 |
| 60MM AMMUNITION | 37.3 | 12.9 | 19.4 |
| 81MM AMMUNITION | 50.2 | 16.3 | 12.8 |
| 120MM AMMUNITION | 13.4 | 44.0 | 60.7 |
| 155MM AMMUNITION | 47.1 | 48.6 | 18.2 |
| FUZES | 0 | 5.3 | 32.4 |
| SMAW (HEAA) | 18.0 | 28.4 | 29.3 |
| LGT ANTI-ARMOR WPN | 6.6 | 10.6 | 0 |
| 9MM, ALL TYPES | 3.8 | 0 | 3.8 |
| GRENADES | 9.0 | 8.7 | 7.9 |
| AMMO MODERNIZATION | 16.7 | 11.1 | 11.7 |
| ITEMS LESS THAN $2 MILLION | 2.7 | 4.9 | 3.2 |
| TOTAL BUDGET ACTIVITY 1 | $259.7 | $249.2 | $284.7 |

# PROCUREMENT, MARINE CORPS

## BUDGET ACTIVITY 2 - WEAPONS & COMBAT VEHICLES

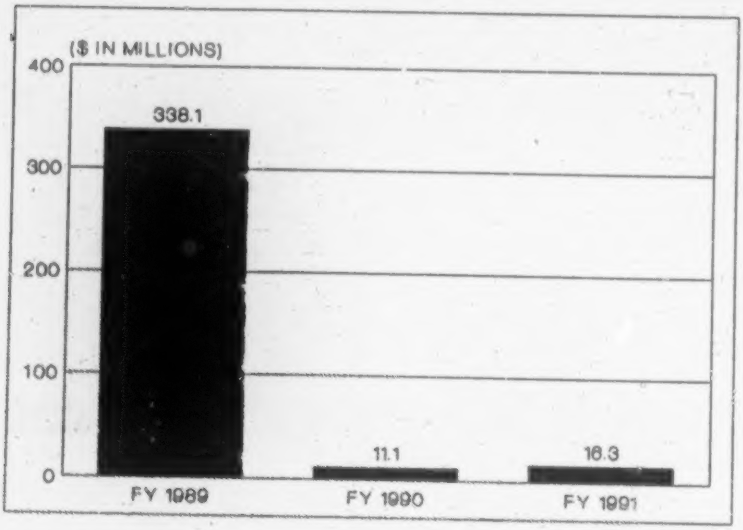


($ IN MILLIONS)

| NOMENCLATURE | FY 1989 QTY/AMOUNT | FY 1990 QTY/AMOUNT | FY 1991 QTY/AMOUNT |
|---|---|---|---|
| AAV7A1 PIP | -/ 47.4 | -/ 12.9 | -/19.0 |
| MOD KITS (TRK VEH) | -/ 0 | -/ 3.0 | -/ 3.1 |
| M1A1 TANK | 66/140.9 | 155/374.3 | -/ 0 |
| M1A1 TANK AP | -/ 15.9 | -/ 0 | -/ 0 |
| ITEM <$2M (TRK VEH) | -/ .4 | -/ .8 | -/ .3 |
| ITEM <$2M (ALL OTHER) | -/ .7 | -/ 2.6 | -/ 1.7 |
| .50 CALIBER, M2 | -/ 0 | -/ 0 | 462/ 4.2 |
| 9MM HANDGUN | 13589/ 3.2 | -/ 0 | -/ 0 |
| 5.56MM, SAW | 572/ 1.7 | 1297/ 5.4 | -/ 0 |
| M16A2 RIFLE | 9427/ 5.1 | -/ 0 | -/ 0 |
| MK-19, 40MM | 350/ 5.0 | -/ 0 | 1181/17.2 |
| TOTAL BA 2 | 220.3 | 399.0 | $45.5 |

## PROCUREMENT, MARINE CORPS

### BUDGET ACTIVITY 3 - GUIDED MISSILES & EQUIPMENT

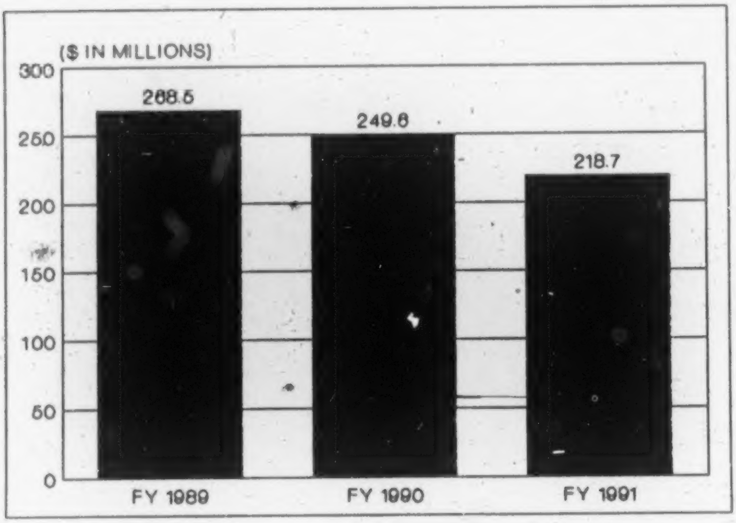


($ IN MILLIONS)

| NOMENCLATURE | FY 1989 QTY/AMOUNT | FY 1990 QTY/AMOUNT | FY 1991 QTY/AMOUNT |
|---|---|---|---|
| HAWK (MYP) | 467/ 98.0 | -/ 0 | -/ 0 |
| HAWK AP | -/ 34.2 | -/ 0 | -/ 0 |
| HAWK MOD | -/ 8.0 | -/ 1.1 | -/ 5.9 |
| STINGER | 3115/141.1 | -/ 0 | -/ 0 |
| DRAGON | 14599/ 29.2 | -/ 0 | -/ 0 |
| TOW MISSILE | 2469/ 25.7 | 577/10.0 | 662/10.1 |
| MOD KITS | -/ 1.9 | -/ 0 | -/ .3 |
| TOTAL BA 3 | 338.1 | 11.1 | 16.3 |

## PROCUREMENT, MARINE CORPS

### BUDGET ACTIVITY 4 - COMMUNICATIONS & ELECTRONICS EQUIPMENT



($ IN MILLIONS)

| | FY 1989 AMOUNT | FY 1990 AMOUNT | FY 1991 AMOUNT |
|---|---|---|---|
| BUDGET ACTIVITY 4 | 268.5 | 249.6 | 218.7 |

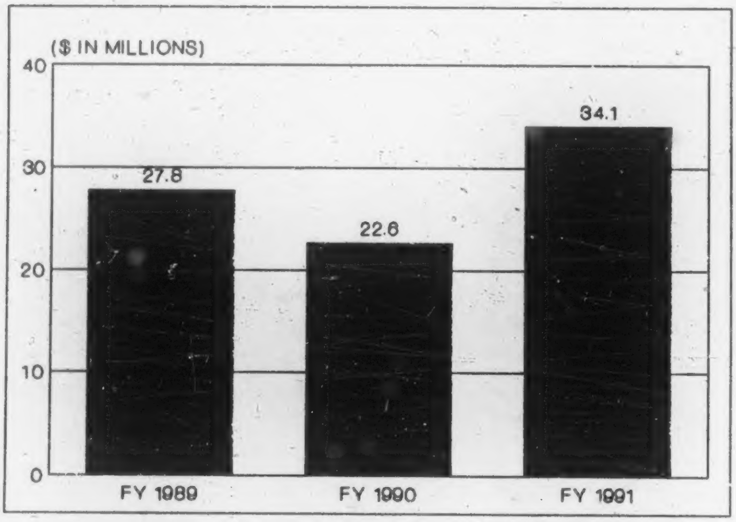
## PROCUREMENT, MARINE CORPS

($ IN MILLIONS)

| NOMENCLATURE | FY 1989<br>QTY/AMOUNT | FY 1990<br>QTY/AMOUNT | FY 1991<br>QTY/AMOUNT |
|---|---|---|---|
| MANPACK RADIOS | -/ 0 | -/ 4.3 | -/ 2.3 |
| VEH MTD RADIOS | -/ .4 | -/42.5 | -/56.0 |
| ULCS | -/75.7 | -/48.0 | -/32.9 |
| TACT COMM CTR | -/ .9 | -/ 7.7 | -/ 7.4 |
| DIGITAL COMM TERM | -/ 0 | 174/ 3.6 | 519/ 9.6 |
| SWEEP GENERATOR | -/ 0 | -/ 3.3 | -/ 3.3 |
| AUTO TEST EQUIP SYS | -/ 8.0 | -/ 0 | -/ 0 |
| TEST EQUIP (TEL) | -/ 2.3 | -/ 4.7 | -/ 8.0 |
| AN/GRM-114A TEST SET | 60/ .9 | -/ 0 | -/ 0 |
| ANDVT/TACTERM | 55/ 2.0 | -/ 0 | -/ 0 |
| TEST CALIB&MAINT SPT | -/ .3 | -/ 0 | -/ 0 |
| MOD KITS (TEL) | -/ 0 | -/ 5.1 | -/ 7.8 |
| ITEMS <$2M (TEL) | -/ 0 | -/ 2.6 | -/ 1.6 |
| PLRS | -/27.6 | -/23.6 | -/ 0 |
| TAOM | 10/67.3 | 7/54.1 | 6/47.4 |
| TACT RECR EQUIP SET | 12/ 3.8 | -/ 0 | -/ 0 |
| LEWDD | 10/ 5.0 | 10/ 2.4 | 26/ 6.7 |
| INTEL SPT EQUIP | -/ 9.8 | -/ 4.3 | -/ 4.3 |
| MOD KITS (INTEL) | -/ 0 | -/ 3.9 | -/ 5.2 |
| ITEMS <$2M (INTEL) | -/ 0 | -/ .9 | -/ 0 |
| ELECT TMDE RPR FAC | -/ 0 | -/ 0 | 5/ 3.5 |
| SPECTRUM ANALYZER | -/ 0 | 107/ 4.1 | -/ 0 |
| STE/ICE | 13/ .1 | -/ 0 | -/ 0 |
| MECH TEST TMDE | -/ 1.1 | -/ 1.2 | -/ 1.2 |
| RADAR TEST SET | 53/ 4.0 | -/ 0 | -/ 0 |
| TEST EQUIP(NONTEL) | -/ 2.0 | -/ 1.8 | -/ 1.7 |
| THERMAL IMAGING EQUIP | -/ 0 | -/ 0 | -/ 3.5 |
| NIGHT VISION EQUIP | -/16.4 | -/ 0 | -/ 0 |
| ADP EQUIPMENT | -/33.4 | -/20.0 | -/11.5 |
| TEST CALIBR&MAINT SPT | -/ 1.4 | -/ 1.5 | -/ 1.4 |
| MOD KITS (NON-TEL) | -/ 0 | -/ 8.7 | -/ 2.5 |
| ITEMS <$2M (NON-TEL) | -/ 6.1 | -/ 1.3 | -/ .9 |
| TOTAL BA 4 | 268.5 | 249.6 | 218.7 |

## PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 5 - SUPPORT VEHICLES

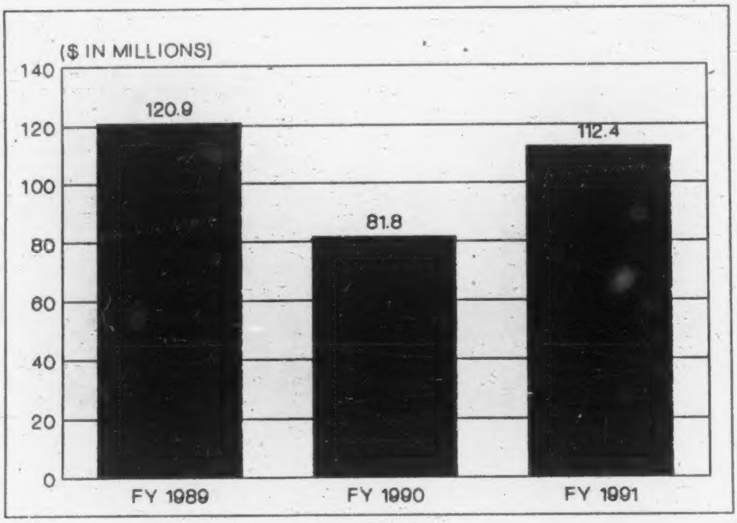


($ IN MILLIONS)

| NOMENCLATURE | FY 1989 QTY/AMOUNT | FY 1990 QTY/AMOUNT | FY 1991 QTY/AMOUNT |
|---|---|---|---|
| COMM PSNGR VEH | 135/ 2.3 | 172/ 3.4 | 194/ 3.8 |
| COMM CARGO VEH | -/12.8 | -/13.0 | -/13.1 |
| M876 MAINT TRUCK | -/ 0 | -/ 0 | 26/ 4.9 |
| 5-TON TRUCKS | -/ 0 | -/ 2.6 | -/ 0 |
| LVS | -/10.8 | -/ 0 | -/ 0 |
| TRAILERS | -/ 1.9 | -/ 0 | -/ 2.1 |
| MOD KITS | -/ 0 | -/ 2.9 | -/ 9.0 |
| ITEMS <$2M | -/ 0 | -/ .7 | -/ 1.2 |
| TOTAL BA 5 | 27.8 | 22.6 | 34.1 |

# PROCUREMENT, MARINE CORPS

## BUDGET ACTIVITY 6 - ENGINEER & OTHER EQUIPMENT



($ IN MILLIONS)

| | FY 1989 AMOUNT | FY 1990 AMOUNT | FY 1991 AMOUNT |
|---|---|---|---|
| BUDGET ACTIVITY 6 | 120.9 | 81.8 | 112.4 |

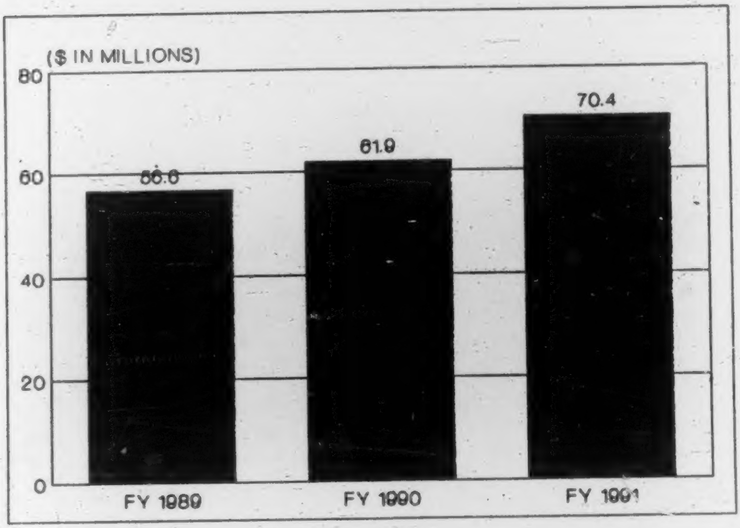
## PROCUREMENT, MARINE CORPS

($ IN MILLIONS)

| | FY 1989 | FY 1990 | FY 1991 |
|---|---|---|---|
| NOMENCLATURE | QTY/AMOUNT | QTY/AMOUNT | QTY/AMOUNT |
| ENVIRON CTRL EQUIP | -/ 2.9 | -/ .1 | -/ 3.1 |
| HEAVY CRANE | -/ .1 | -/ 0 | -/ 0 |
| LIGHT CRANE | 142/ 8.7 | 18/ 1.1 | -/ 0 |
| TRACTORS | -/11.7 | -/ 0 | -/ 0 |
| FORKLIFTS | -/27.8 | -/ 0 | -/ 0 |
| FIELD SHOWER UNIT | 152/ 1.5 | -/ 0 | -/ 0 |
| F&W PUMP & STORAGE | -/ 5.7 | -/ 0 | -/ 0 |
| AMPB ASLT FUEL SYS | -/ 0 | -/ 0 | -/ 2.4 |
| TOPO/SURVEY EQUIP | -/ 0 | -/ 0 | -/ 3.8 |
| POWER EQUIP, ASSORTED | -/ .1 | -/ .5 | -/11.1 |
| CMD SPT EQUIP | -/ 3.1 | -/ 4.0 | -/ 4.0 |
| AMPB RAID EQUIP | -/ 2.5 | -/ .2 | -/ .2 |
| PRODUCTIVITY INVEST | -/ 2.4 | -/10.5 | -/16.3 |
| PHYSICAL SECURITY | -/ 2.0 | -/ .3 | -/ .3 |
| GAR MOB ENGR EQUIP | -/ 2.5 | -/ 4.5 | -/ 5.5 |
| TELEPHONE SYSTEM | -/ 7.1 | -/ 0 | -/ 0 |
| WAREHOUSE MOD | -/ 1.0 | -/ 2.5 | -/ 3.0 |
| MATL HANDLING EQUIP | -/ 2.3 | -/ 2.4 | -/ 2.2 |
| FIRST DEST TRANS | -/ 0 | -/ 0 | -/10.9 |
| LTWT DECON SYS | 240/ 4.0 | -/ 0 | 202/ 3.6 |
| DRY CHEM FIRE EXT | -/ 0 | 300/ 3.1 | 196/ 2.1 |
| TRAINING DEVICES | -/ 6.0 | -/ 5.0 | -/ 3.7 |
| SHELTER FAMILY | -/19.3 | -/13.8 | -/15.3 |
| CONTAINER FAMILY | -/ 7.6 | -/12.2 | -/15.5 |
| MOD KITS | -/ 0 | -/ 0 | -/ 1.5 |
| ITEMS <$2M | -/ 2.6 | -/ 3.8 | -/ 2.7 |
| INSTALL OF MOD EQUIP | -/ 0 | -/14.5 | -/ 0 |
| IND/DEPOT MAINT | -/ 0 | -/ 3.4 | -/ 5.2 |
| TOTAL BA 6 | 120.9 | 81.8 | 112.4 |

## PROCUREMENT, MARINE CORPS

### BUDGET ACTIVITY 7 - SPARES & REPAIR PARTS



($ IN MILLIONS)

| NOMENCLATURE | FY 1989 AMOUNT | FY 1990 AMOUNT | FY 1991 AMOUNT |
|---|---|---|---|
| BA 2 INITIAL SPARES | 6.9 | 10.2 | 1.6 |
| BA 3 INITIAL SPARES | 3.0 | 0 | 2.0 |
| BA 4 INITIAL SPARES | 20.2 | 14.0 | 19.4 |
| BA 5 INITIAL SPARES | 1.2 | .2 | 1.5 |
| BA 6 INITIAL SPARES | 1.2 | 1.7 | 1.5 |
| REPLENISHMENT SPARES | 24.1 | 35.8 | 44.4 |
| TOTAL BA 7 | 56.6 | 61.9 | 70.4 |

## Research and Development Funding Reductions

Mr. Dicks. A general question regarding R&D.

Were you running this show last year?

General Dailey. No, sir.

Mr. Dicks. Last year the Reagan budget was $40 billion for research and development which was cut by Congress to $37 billion. I would like to get a sense of what that did to the basic R&D program of the Marine Corps. You obviously had to share in part of that reduction. Can you tell us generally what happened?

You have had to downsize your program with the revisions in the Cheney budget. How do you do that and what are the kinds of judgments you make about what should or shouldn't be funded? I know there is a certain amount of R&D that goes with procurement of weapon systems that are in procurement, but then you have your technical base, development, various aspects of research and development.

How do you decide what to cut?

General Dailey. We operate off a prioritized list of those things we want to accomplish. When we get a cut of that type, it is spread across the board to some degree by slowing down some of the efforts by funding them at lower levels.

In R&D, a large portion of what we do is a level of effort where we will hire someone to do something for us and expend man-years against that effort, whether it be a study or support, and we can slow those down and draw the program out somewhat, but in some cases we have to cut the lower priority programs.

Mr. Dicks. Let's take a program—a tank, for example. You have a certain amount of money for procurement of that tank and then a certain amount for R&D.

What is that R&D money used for?

General Dailey. In the case of a tank, the R&D money would be to participate with the Army in development of the weapon system and to ensure that our requirements are met in that vehicle.

In some cases, we don't put any R&D in if development appears to be meeting our requirements totally. We use liaison officers and participate in the program management of the development, but it doesn't cost us anything. We try to get by with a minimum expenditure of R&D and make it meet our requirements without expenditure of the additional funds.

### TECH-BASE FUNDING

Mr. Dicks. The technical base, we spend $3 or $4 billion a year on technical base.

What does the Marine Corps get out of that? Is it basic research and university research?

General Dailey. We monitor what everyone else is doing through use of our liaison officers. We have them in all the labs and test facilities run by other services. They watch what is going on and keep us informed of possible applications in the Marine Corps and then we see how much we might be able to benefit from what is being done. We have a modest technical base development program of our own.

Mr. Dicks. That is a couple hundred million dollars?

General, **DAILEY**. Yes, sir. In this case, it is only $33.4 million in 1991.

One of the areas we are looking at is shallow water mine detections, an area where we bridge the activities of the Navy, which is deep-water mine detection, and the land mine detection of the Army.

### IMPLEMENTATION OF BUDGET REDUCTIONS

Mr. **DICKS**. Last year, there was a drawdown under the Cheney budget. Have you been crippled by this or is it just something you have to manage and take a lower number?

You mentioned all the things you do to adjust to a lower number. Obviously there will be a lower number again this year the way things look.

The reason I am asking these questions is just to get a sense from you about how you make these judgments.

How would you characterize what has happened so far and what would happen if you were reduced 10 percent more, for example?

General **DAILEY**. We have not been crippled by what has been done so far. We are stretched pretty thin to cover those things we feel essential for us to continue in development to be ready to field future systems. An additional cut will have an impact in that we will have to cancel or severely draw down some programs that we are doing now.

Mr. **DICKS**. I have been on this committee for 12 years, it seems there are certain things you are bringing along and then all of a sudden there is a decision to go from R&D to procurement.

It looks like there will be less money out there for procurement. It would seem that if that is true, shouldn't we then be thinking about maybe doing less, making some tough decisions about what looks good and maybe not spending as much in developing systems if the likelihood of them going into procurement is less?

Does that make sense or is it the opposite; that by having a diverse program, then you find some things that might work that you wouldn't have found if you went with the more, what you might call, sure bets?

How do you analyze that?

General **DAILEY**. I agree that if we are not going to procure it, we should cancel it. We don't know what we will be able to procure. We are working the 1992 budget now and as that sorts out, we will have to make hard decisions as to those things we are not going to be able to do.

There are some cases where the technology that is being pursued; I would use the shallow water mine detection as an example, where I believe we should pursue that technology whether or not we are able to adequately support it within our procurement budget. This is for advanced technology, not immediate procurement.

Finally if we are not going to buy it, we shouldn't develop it. We would essentially be repackaging existing technology. Developing that technology to put it on the shelf doesn't make sense because that technology is already mature.

Mr. **DICKS**. There is a question of tactical R&D, isn't there?

Of course, the Marine Corps is the smallest, but there are page after page of specific line items, $30 million for this, $80 million for that.

How do you decide how many of those you can finance at one time?

General DAILEY. The requirements are identified by the Marine Corps Combat Development Center, a new organization created by General Gray, to consolidate Marine Corps requirements. MCCDC gets all the input from the Fleet Marine Forces and determines the priority of these requirements. They are then reviewed and approved by the Commandant and forwarded to the Marine Corps Research, Development and Acquisition Command or MCRDAC.

MCRDAC conducts a technology search to find out what is available to meet the requirement, or to find out what has promise of meeting the requirement. We go back to MCCDC and say, "Is this what you are looking for in terms of meeting this requirement?" If they agree, then we pursue development further to evaluate the capability to meet the requirement. But it is a case of as we were speaking before, if we have the money, sometimes we fund things that perhaps are not as promising because it looks like something we should be doing in terms of the technical base development. These are the first things to go when you start losing funds.

Mr. DICKS. Mr. McDade?

## EQUIPMENT FOR A LIGHTER MARINE CORPS

Mr. McDADE. Welcome.

We look forward to a long and enriching relationship between both sides of the table.

Let me draw your attention to the equipment for a lighter Marine Corps. In his annual report to Congress, General Gray states that the Marine Corps Master Plan places increased emphasis on low- and mid-intensity conflict. As the Marine Corps moves in this direction in the coming years, what will be the impact on equipment and procurement requirements?

General DAILEY. I think that we are seeing some of the impacts in this budget. It will be a focus on lightweight, highly mobile, highly reliable and effective weapon systems.

The light armored vehicle assault gun and air defense variants are examples of this and the termination of the M-1 procurement in this budget for the Marine Corps is an example of a weapon system that was focused at the heavy end of the spectrum. Now we are placing a lower priority on that capability in the Marine Corps.

## M-1 TANK PROCUREMENT

Mr. McDADE. Since you brought up the M-1, in fiscal years 1989 and 1990, Congress funded the procurement of 221 M-1 tanks for the Marine Corps.

The Marines planned to procure a total of 476 tanks to replace the current inventory of 716 M-60 tanks.

Why has the Marine Corps now decided to stop M-1 tank procurement at 221 tanks? Restructuring, affordability, or what is going on?

General **Dailey**. The focus on the low-to-mid intensity conflict and the affordability of items in the budget drove us to that decision. The primary decision was based upon our desire to get lighter, and the M–1; although it is the best in the world and a critical portion of that ability we needed to face the heavy end of the spectrum, it is the focus on the light end that caused the termination decision.

Mr. **McDade**. Why did you stop at 221 tanks?

General **Dailey**. That is the number necessary to meet our requirements.

Mr. **McDade**. You are confident that that number would represent a sufficient level of force to meet the heavy force threat around the world that you face today?

General **Dailey**. Yes, we are. It has been carefully thought out, before the decision was made, as to how we would spread them to meet our requirements.

There was $111 million in advance procurement in 1990 for the tank that we were hoping to use to buy back our manpower.

Mr. **McDade**. That is in the reprogramming that has been sent over?

General **Dailey**. Yes, it is. It has been disapproved, however, by the Senate Armed Services Committee for reprogramming.

Mr. **McDade**. I didn't know that.

When did they disapprove that as a source?

General **Dailey**. We received a letter last Friday that indicated that they would probably approve about an 85 percent reprogramming, but that the M–1 advanced procurement was disallowed as an offset.

Mr. **McDade**. Are you going back to the drawing table?

General **Dailey**. Yes, sir.

Mr. **McDade**. Did you find a source yet?

General **Dailey**. We don't have a source for that because giving up manpower is the only thing we can do to provide the money.

Mr. **McDade**. What units will the tanks be delivered to?

General **Dailey**. We will have two active duty tank battalions. This structure is still in the final stages of planning but it will be two active duty battalions with reserve affiliation associated with them for manning and also for training on these tanks. The reserves will only have limited numbers at their training sites to maintain their proficiency.

Mr. **McDade**. What will be the disposition of the M–60s once you get the deliveries?

General **Dailey**. They will be excessed back to the Army for disposition.

## EQUIPMENT FOR A LIGHTER MARINE CORPS

Mr. **McDade**. General Gray stated that the congressional initiative to fund the Soldier-Marine Enhancement program was used for the continued development and procurement of more lethal infantry weapons and improved "soldier items."

What specific items of equipment have been identified under this program and what are your plans for additional procurement?

General **Dailey**. The principal weapon identified under this program is the rifleman's assault weapon, RAW, a rifle-launched grenade-type weapon which is capable of knocking down doors, walls, bunkers, and any other edifice. It is good for confined area operations.

Mr. **McDade**. General, that is an older, mature program. The money that we added last year was for the enhancement, and I have nothing against the RAW—I am sure you fellows are accurate in looking at it—but the enhancement program was to be a new initiative, and I am trying to focus on the new programs as a result of the add-ons and the Commandant's conversation about enhancements.

General **Dailey**. I must admit that most of the money that we have allocated is for mature-type devices where we are evaluating their applicability to the Marine Corps.

We allocated funding across a great number of systems, but philosophically what we tried to do was lighten the infantryman's load, which we have done with a cold weather kit which is 30 pounds lighter than the one they are using today.

We have focused on cold weather snow mobility with a new mobility system that includes skis, bindings, boots and assault snow shoes. Also, there is an anti-personnel obstacle breaching system which is advanced technology; a device to replace the Bangalor torpedo.

Mr. **McDade**. Expand on that for the record.

Show us how that money was allocated that was appropriated and what was expended for and go across the full spectrum.

Do it for the record, please.

[The information follows:]

Congress provided $11.678 million to the Marine Corps in fiscal year 1990 for enhancing the infantryman's combat capability. The enhancement was to be attained through the development and evaluation of "off the shelf" more lethal infantry weapons and improved "foot soldier" load bearing equipment, field gear, survivability items, communications equipment and navigation aids. The specific items are as follows:

1. Rifleman's Assault Weapon/$2.0 Million.

A Non Developmental Item (NDI) ordnance item launched from a rifle's muzzle that permits the individual rifleman to breach concrete walls and other urban targets from ranges out to 250 meters and from within protective enclosures.

2. Over snow Mobility Suite/$3.0 Million.

This program will operationally test a suite of state-of-the-art individual snow mobility items including skis, ski march boots, poles, bindings, assault snowshoes, and a family of equipment and casualty sleds. The intent of this program is to replace the 1950's technology currently in service with lighter, better snow mobility equipment designed with performance, comfort, and individual preventative injury in mind.

3. Extreme Cold Weather Shelter/$1.0 Million.

This program will operationally test an NDI four man, 15 pound tent designed to provide protective shelter in extreme cold weather conditions. This is both a load reduction effort and quality of life/war fighting enhancement initiative.

4. Combat Load Enhancement/$1.5 Million.

This program will survey the available state-of-the-art individual equipment used by the armies of the world with the intent of procuring the best of what is available for operational testing. Items included in this initiative include, but are not limited to, flashlights, individual rain protective gear, entrenching tools, lightweight stretchers, and individual shelters. Much of the equipment of this type that is currently in the active inventory is of World War II design. Lighter, more effective equipment exists and would enhance the quality of life and combat effectiveness of our Marines.

5. Antipersonnel Obstacle Breaching System (APOBS)/$0.95 Million.

A man portable, fire and forget, mine and wire neutralization/clearing system that creates a continuous 45 meter long x .6 meter wide cleared foot path. Employed by two men in 30 seconds, the system provides the Marine with a 25 meter standoff from the mine field. This system will replace the bangalore torpedo which has been in service since WWII at a weight savings of 5:1. This $.95 million will be added to the current Marine Corps funding of $1.5 million to accelerate the full scale development (FSD) portion of the program.

6. Reconnaissance Patrolling Insertion/Extraction Equipment/$1.178 Million.

This initiative includes a number of associated items that support reconnaissance/raid operations. An example of the type equipment included in this initiative is the small unit water purification unit. That system allows a four man team to live off the land's available water using a one pound unit that provides 10,000 gallons of purified water between filter changes.

7. Special Operations Force Mountaineering Equipment (SOFME)/$0.2 Million.

This initiative will procure the necessary systems for an operational test of special climbing equipment. The SOFME provides a light weight system used for cliff assaults and urban scaling operations.

8. Personal Tracking System/ $0.25 Million.

These funds will procure and operationally test an individual locator/tracking system that weighs ounces but will permit rescue teams to quickly locate individuals that get lost, separated, or captured during reconnaissance/raid operations.

9. Flame Retardant Assault Suit/$0.2 Million Hazardous Material Gas Mask/$0.15 Million.

These two initiatives go together. Together the system will provide an individual with the ability to survive in an airless, 2,000 degree fire environment for approximately two minutes.

10. Load Bearing Equipment (Assault)/$0.2 Million.

Under this initiative, special load bearing equipment for assault/raid units will be procured and operationally tested. The equipment will be light weight, providing only for the portability of the war fighting necessities associated with raid operations.

11. Special Operations Improved Cryptographic System/ $1.0 Million.

These funds will provide for the operational test of a new, Non Developmental Item secure voice radio system that weighs 1.5 pounds and is 3.6 x 5.5 x 2.1 inches in size.

12. Small Unit Navigation System/$0.05 Million.

Two state-of-the-art systems from two manufacturers will be operationally tested under this initiative. These systems weigh less than five pounds, are 6.5 x 7 x 2 inches in size, and can provide a unit with its position anywhere in the world with an accuracy of plus or minus 25 meters.

Mr. McDade. What equipment that is in your inventory now do you consider to be inappropriate for a lighter force?

Have you got a list? What are you going to do with it if you do have such a list?

General Dailey. We still have a requirement to meet the threat across the spectrum and I don't believe that we have any equipment that will not have application to some contingency requirements that we are going to have to face.

The actions that have been taken in previous years to go lighter, the conscious decision to go with a lighter armored vehicle, was probably a major step in this direction.

Mr. McDade. The M-60 is going to be replaced by the new tank——

General Dailey. Yes, sir.

Mr. McDade. The M-60 is going out. Any others going out?

General Dailey. There aren't. That has already been done. When General Gray came abroad as Commandant two-and-a-half years ago, his focus was to go light-to-mid intensity and to redirect all of our efforts in that direction. I think that we are in good shape now.

## TACTICAL AIR OPERATIONS MODULE

Mr. **McDADE**. One final item.

Last year Congress appropriated the budget request of $46.6 million to procure five tactical air operations modules. The current budget shows the Marine Corps will procure seven TAOMs for $54.1 million.

What was the source of the funds for the increase in the budget? How did you get up from five to seven?

General **DAILEY**. We took the money out of the M-1 tank program.

Mr. **McDADE**. What is the procurement strategy for the operation modules for fiscal year 1990 and beyond? How many are you going to buy in fiscal year 1990 and beyond?

General **DAILEY**. The plan is for a total of 48 for the Marine Corps and by the end of 1991, we will have procured 43 of those modules. For 1992, we will buy the additional five.

Mr. **McDADE**. Is there some kind of procurement strategy that you have to do that?

General **DAILEY**. There is a procurement strategy.

Mr. **McDADE**. Describe it, General. Tell us about it.

General **DAILEY**. Do you mean how many modules per year?

Mr. **McDADE**. Are you going to go multiyear, have competition? I am trying to get a feel for how you are going to do that.

We recognize you are going out to a given number. What sort of contractual methods are you going to use to get there? What is the general buying strategy for 1990 and beyond?

Do you want to put that in the record, General?

General **DAILEY**. We are in the fourth year of production in 1991. The 1990 cost proposal is presently in negotiation. We expect to have a contract award date of April-May of this year. We will have achieved 87.5 percent of our AO or 43 of the 48 TAOMs with the 1991 buy and we have begun unit level testing. We will have system level testing that will begin in May of 1990 in Van Nuys, California.

I might emphasize that we have the engineering development model of this system which remained in the field and we have continued to operate it. We took it to Egypt with us and used it in operational exercises and it has proven very capable and very reliable.

Mr. **McDADE**. I know the Corps has been very high on it and we have been trying to support that. There has been a slip in the program, hasn't there?

General **DAILEY**. There has.

Mr. **McDADE**. We understand you were expecting fiscal year 1990 deliveries to begin in second quarter 1992; now you are projecting delivery beginning in the second quarter 1993.

Is that the way you see it?

General **DAILEY**. Could I perhaps provide for the record the information?

Mr. **McDADE**. Yes.

We recognize the difficulties we sometimes see in all this procurement effort, but we are talking about slipping one year.

That is pretty substantial, so if you would like to amplify it for the record, fine.

General DAILEY. It is not a technical problem or any difficulty with the system or the way it is performing.

Mr. MCDADE. What is happening?

General DAILEY. I will research that and provide a response.

[The information follows:]

According to the budget backup books, there has only been a one month slippage in the fiscal year 1990 scheduled deliveries. As identified on page 66-13 of the budget backup book for the FY 1991 President's Budget (dated January 1990), the FY 1990 deliveries are scheduled to start in February 1992. The delivery schedule, on page 70-15, of the budget backup book (dated January 1990) for the fiscal year 1990 President's Budget showed deliveries of the FY 1990 buy starting in January 1992. The February 1990 award date has now slipped to May 1990. This slippage resulted from approved Rates and Factors not being received from the Defense Contracting Agency Service in time for submission with the Request for Contractual Proposal (RCP). We are presently in the fact finding stage and plan to start negotiations in April 1990 with contract award in May 1990.

Mr. MCDADE. Thank you, General.

Thank you, Mr. Chairman.

Mr. DICKS. Mr. Livingston?

## ADVANCED ANTITANK WEAPON SYSTEM—MEDIUM

Mr. LIVINGSTON. Thank you, Mr. Chairman.

The Advanced Antitank Weapon System, Medium, or AAWS-M, is a joint program with the Army to replace the DRAGON, and I think the DRAGON might have been listed on your list in response to Mr. McDade's question. From everything I have heard, DRAGON has not worked out real well. That is the current medium antitank weapon system.

A full-scale development contract was awarded for AAWS-M on June 21, 1989, and having just seen a demonstration of the thing, I can tell you that it looks very good. The Army personnel who work on the program seem to be very excited about the program. I wondered, first of all, what the Marine Corps' financial commitment is to the program? Do you have information on that?

General DAILEY. Yes, I do.

We are not expending any R&D on the program other than that required for our participation, which is a very low level, but we are totally committed to the AAWS-M as our medium antitank weapon of the future, and to replace the DRAGON II.

Our funding line starts in 1993 and we will actually receive deliveries as part of the first production run. In 1993, we have $101.2 million for AAWS-M.

Mr. DICKS. That is in procurement?

General DAILEY. Yes, sir.

Mr. DICKS. Are you contributing to the R&D?

General DAILEY. Yes, and 1993 is the first production year for us with the AAWS-M.

Mr. LIVINGSTON. Nothing in 1991 or 1992?

General DAILEY. No, sir.

Mr. LIVINGSTON. That is a long time down then.

Do you have anything allotted at all in fiscal year 1991? Do you have research—I guess it is R&D. That is a rather general question.

What is committed?

General **Dailey**. We are spending $300–$400 thousand a year in R&D for liaison officers, travel, shipboard certification and that sort of thing, but we are going to buy the system the way the Army is developing it. We are watching it and are very enthusiastic that it will meet our requirements.

Mr. **Dicks**. You didn't have to contribute to the R&D on this?

General **Dailey**. That is right. The Army is spending the money and developing a weapon we are going to buy.

### "SHOOT OFF" OF ANTITANK WEAPONS

Mr. **Livingston**. I want to give credit to Mr. AuCoin, who has adopted this as a pet project for a long time, and I have to compliment him because it looks like it is the answer to the reactive armor on tanks and can do an extraordinarily effective job for the foot soldier and for the Marine, so I would encourage you to participate to whatever extent you can.

I am told, though, that the fiscal year 1990 DOD Authorization Act requires a shootoff between three antitank systems, the Milan, the DRAGON II, and the Bofors BILL.

What is the utility of this shootoff?

General **Dailey**. We don't see any utility in that because these are not the same weapons that we are talking about in terms of capability. The AAWS–M is clearly the only system of those three that would meet the threat that we are interested in being able to counter.

Mr. **Livingston**. So in the course of the development of the AAWS–M, it has been directed that these other less capable weapons shootoff with the possibility that they may replace the AAWS–M, but that would not be the desire of the Marine Corps?

General **Dailey**. It would not; not only for the capability of the weapon, but the manning that is required for those weapons is substantially more than would be required for the AAWS–M.

Mr. **Livingston**. It takes more than one soldier?

General **Dailey**. That is correct.

Mr. **Livingston**. In some instances, it takes three; very heavy, bulky, not too capable, not too effective weapons.

General **Dailey**. Yes, sir.

### Countermine Program

Mr. **Livingston**. Okay.

Well, I think that we have a real good program. It looks like it has a tremendous amount of promise and again, I want to applaud Congressman AuCoin for his interest in this and bringing it along as fast as it has been.

The fiscal year 1991 budget request includes $27.9 million for the Surf Zone Mine Clearing program, CATFAE. This system will be installed in the AAV7A1, which will be capable of firing from a stationary position, on the move, afloat, or ashore.

The plan is to create sufficient overpressure to breach a 20-meter by 300-meter lane through minefields. This project addresses 80 percent of the mine threat. Except for the fact that this system will be installed on an existing piece of equipment, it seems quite similar to an old Army system, the Surface-Launched Unit Fuel-Air Explosive.

In what ways is the system different than the Army's late 1970s mine neutralizer program? Would you like to submit that information for the record?

General DAILEY. I might comment and perhaps clarify the last portion for the record.

The CATFAE is a catapult-launched fuel air explosive, which is the same technology that was being used in the Army system. It uses an overpressure to neutralize the mines.

Mr. LIVINGSTON. It virtually explodes over a minefield and fragments——

General DAILEY. No, sir. CATFAE explodes above the minefield as the first explosion, which deploys the fuel air mixture and micro-seconds later, the mixture is ignited and it explodes with a tremendous overpressure. It is a no-fragmentation-type weapon, but the overpressure neutralizes the mine despite the fuzing. Eighty percent of mines could be cleared with the system.

The other advantage is that it can be fired on the move, which increases survivability of the launch vehicle.

We did look at the Army system. In fact, we have gone beyond that development, but I will have to provide the specific differences for the record.

[The information follows:]

The Marine Corps Surf Zone Mine Clearing (CATFAE) Program differs from the Army 1970's Surface Launched Unit, Fuel Air Explosive (SLUFAE) Program as follows:

a. SLUFAE was mounted on a M548 full tracked cargo carrier, a dedicated vehicle. The CATFAE system is a slide-in and slide-out kit designed specifically for the current Marine Corps amphibious assault vehicle, the AAV7A1. It does not dedicate a specific AAV7A1 to the system, allowing the vehicle to be used for other purposes as necessary.

b. The SLUFAE system required the vehicle to be stopped for firing. The CATFAE system is amphibious and shoots on the move, both in the water and on land.

c. The SLUFAE system cleared a lane 8 meters by 240 meters using 30 rockets weighing 188 pounds each. The CATFAE system has increased effectiveness in that it is more accurate and it both clears and marks a lane 20 meters by 30 meters using 21 projectiles weighing 234 pounds each.

d. The CATFAE system's ability to shoot on the move, both in the water and on land significantly enhances crew/system survivability on the battlefield. CATFAE will provide a state-of-the-art minefield breaching system with the mobility to move with the assault force. These factors will contribute immeasurably to the successful achievement of the minefield breaching mission.

Mr. LIVINGSTON. Do you understand it to be an effective weapon?

General DAILEY. It is in advanced development and all the tests have been very encouraging, which is why we are pursuing this particular system.

Mr. LIVINGSTON. I am told that the CIA has developed a program to fire a detonating cord out in the minefields and clear paths for advancing troops.

Has that program got any utility for the Marine Corps?

General DAILEY. It has. If it is the linear line charge, we use that for mine clearing and we have this program in advance development called APOBS, anti-personnel obstacle breaching system that works on the same system, but it is an 80-pound man pack which replaces the Bangalor torpedo. We are interested in this technology as well.

Mr. LIVINGSTON. We understand that the CATFAE system will not fit into the future advanced amphibious assault equipment.

Is that true and what is the future for this system if it cannot be used in the follow-on vehicle?

General DAILEY. It is true. We don't know what the advanced vehicle is at this time, but if it is the high-speed variant, we desire a lower profile for that vehicle once it gets ashore. If the advanced vehicle comes out the way we want it, the CATFAE will not fit. We plan to use the AAV7A1, the existing amphibious vehicle as the mine-breaching capability of the future also, perhaps in a robotic mode.

The CATFAE only has a capability against 80 percent of the mines, so we are going to take some casualties as a result of continuing into the assault and we see this as an unmanned vehicle application. We won't have to buy a platform because we will have a system that we can transition into the future and use very effectively in its intended role.

Mr. LIVINGSTON. The existing amphibious system would be capable?

General DAILEY. Yes, sir.

### HONEYWELL PROTEST ON CATFAE

Mr. LIVINGSTON. Honeywell has protested the FSED system, less round, of the CATFAE contract. This resulted in a stop-work order issued in early January.

What has been the effect of this stop-work order on the program?

General DAILEY. It has had no effect. We anticipate resolution of that shortly. Our counsel advises us that the protest will probably be overruled.

Mr. LIVINGSTON. Thank you very much.

General DAILEY. Thank you very much, Mr. Livingston.

Mr. DICKS. Mr. Young?

### MARINE CORPS MISSION

Mr. YOUNG. Thank you very much, Mr. Chairman.

General Dailey, I was reading your entire statement and I realize that you have summarized it, but in your prepared statement, you say, "Even the adversaries we may face in Third World countries, as well as narcoterrorist groups, possess sophisticated, high-tech weaponry such as hand-held surface-to-air missiles."

Give us a couple of examples of the specific threat to the Marine Corps mission that the availability of such high-tech weaponry in the hands of an enemy creates for the Marines.

General DAILEY. On the world market today, if you have enough money, you can buy anything you want. I think it is an interesting situation because even though we are talking about a low-to-mid-intensity environment, we are talking about a very high threat.

The threat is of the very highest caliber and it requires sophisticated capabilities to defeat it, which is one of the reasons why we are pursuing some programs that may seem heavy and expensive, but are in fact important to counter the threat.

We have transitioned into a situation now where we don't have the ability to operate aircraft, for example, without jeopardy, even in a low intensity environment. So we have to use high-threat tactics, which makes it more difficult to perform the mission and less efficient. Mines are a perfect example of a very inexpensive way to cause an attacking force severe problems.

So the fact that we are looking at a low-to-mid-intensity environment does not mean that we can fall off of the high-technology approach to warfighting.

Mr. YOUNG. In effect, what you are saying is you are transporting the Marines from point to point on the ground or from ship to ground to get the Marines to the area where they are going to fight?

General DAILEY. Yes, sir.

### TROOP CARRYING AIRCRAFT

Mr. YOUNG. Tell us about some of the types of aircraft that the Marine Corps uses for that mission today and what their vulnerabilities might be to this type of sophisticated weaponry that the Third World and the narcoterrorists have if they have the money, which they obviously do.

General DAILEY. The primary aircraft is the CH-46E, a tandem rotor helicopter that carries 18 troops. The limitations on the aircraft today are speed and range.

It is a helicopter that generally performs in the helicopter regime quite well.

However, it has no automatic systems to defeat the threat such as defensive electronic countermeasures or infrared countermeasures. It has chaff and flare dispensers, but essentially the pilot must spot the missile launch and then take evasive action on his own.

We are doing what we can to upgrade the helicopter force with these capabilities. We are looking for the ability to avoid the threat. We don't want to fly through it or over it. We would like to be able to go around it. That is a function of speed and range.

This is an area of great interest to us and our number one aviation priority is to replace this helicopter, which we call the medium-lift requirement.

Mr. YOUNG. In order to replace this helicopter with a vehicle that would have enhanced speed and increased range, are we talking about creating a new airplane or taking an existing airframe and making it over?

What would be your plan?

General DAILEY. We were talking about a new aircraft, but it became an affordability issue. Now we are looking for a capability yet to be defined and this is getting a great deal of attention, I can assure you.

Whether we get a helicopter or an advanced capability, the expense is going to be of serious consideration because you can't take a basic aircraft into the conflicts of the future.

It has to have system capability not only to know where it is—navigational capabilities—it has to have communications and also threat-defeating capability.

So we are talking about avionics packages that increase the price of what we used to consider to be a relatively inexpensive platform, which is a helicopter.

Mr. YOUNG. Would it be safe to summarize what you said about the CH-46E that a Marine who might be on board that helicopter approaching a hostile environment might well be in jeopardy from the fact that the CH-46E is not all that secure?

General DAILEY. Yes, a Marine in that mode is always in jeopardy. Our mission in life is to get Marines into combat ready to fight and it is our responsibility to make sure that is the case and that is why we are so concerned about how we handle this requirement.

Mr. YOUNG. I think I have an idea why you didn't mention what that new airplane might have been or ought to be. I can mention it and I think we are talking about the V-22.

Compare for the committee the speed of the V-22 versus the speed of the CH-46E and also the range of the V-22 versus the range of the CH-46E.

General DAILEY. The V-22 would have been twice as fast, in the 300-knot regime as opposed to 150 knots and in range with a full combat load, it would have had four times the range, of 200 miles as opposed to 50 miles.

Mr. YOUNG. The CH-46E would carry 18 troops. What would the V-22 carry?

General DAILEY. Under those circumstances, the V-22 would carry 24 troops.

Mr. YOUNG. With speed twice as fast and four times the range, what does that mean to the Marines who are actually carrying out that mission?

General DAILEY. I think it means success. It gives us the ability to avoid the enemy and choose the place of battle on our terms.

It gives us the ability to get around these threats. We have spent a great deal of money to develop the capability to detect the threat through intelligence programs.

There are no more Iwo Jimas where it is a frontal assault on the beach. We will go around the threat, project the power ashore to our liking, and take on the enemy on our own terms.

That is the over-the-horizon concept.

Mr. YOUNG. Can you think of any examples of how much better the mission can be performed with a V-22 versus a CH-46E?

Compare some other examples, if you can, to where we made great strides, like that in the past maybe with a tank or another type of airplane.

General DAILEY. The helicopter itself was that kind of a stride. We have transitioned from land operations essentially, envelopment by vehicle or tank or by foot to now where we have the vertical envelopment of the helicopter.

V-STOL aviation, with the introduction of the Harrier, which gave us the basing flexibility to be close to the troops that needed the support, was also a quantum step.

Mr. YOUNG. So we could be taking the difference between success and failure of a mission using the V-22 instead of a CH-46E?

General DAILEY. That would be a true statement. It would be the responsibility of the commander not to commit himself to a mission he was going to fail, but it may prevent us from doing a mission we should be able to do.

Mr. YOUNG. And maybe give a little more survivability to the troops involved?

General DAILEY. Yes, because of the way you can employ it and the characteristics that it has.

Mr. YOUNG. I recognize that it is a very expensive system, but practically everything we do in modernization is expensive when we are talking about new technology and advancing the state of the art.

I tend to believe that the Marine Corps, with their difficult mission, under the best conditions, should have the very best weapons and the very best capability that it is possible for us to provide.

I am very disappointed that affordability got in the way of giving the Marine Corps this type of tremendously increased capability.

I thank you for your responses and comments. Thank you, Mr. Chairman.

Mr. DICKS. Mr. Miller.

### M-1 TANK PROGRAM

Mr. MILLER. Thank you, Mr. Chairman.

General, I understand that you had considered and talked about the M1A1 tank earlier and I was at another meeting, so I am not positive what was covered, but I do have one point.

The manufacturer of the tank has a Block 2 improvement, as I understand it, which incorporates changes in technology to make it a little better tank. I have heard, and would like for you to clarify, that the manufacturer would like to be able to sell a few of those tanks to the Department of Defense to keep the line going so that they could sell to other nations interested in purchasing some of the M-1 tanks.

Is there any truth to that?

General DAILEY. Yes, sir. There is a Block 2.

The Marine Corps is not participating in the Block 2. The reason is because we were buying Block 1's and we decided it would be better to have all the same type of tanks rather than having a limited number of the Block 2's.

I do not know the status of Block 2 development at this time, but I know there is great interest both on the part of the Army and the contractor to complete it.

Mr. MILLER. Would the Block 2 upgrade the Block 1 tank?

General DAILEY. Yes, sir. It includes a package of three modifications.

Mr. MILLER. You can furnish that for the record, General.

I know that you are not the prime mover when it comes to the M-1 tank. The Army has many of them and they are interested in the Block II, but I wondered what your comments might be.

If you want to clarify that for the record, feel free to do so.

[The information follows:]

As a result of the August 1989 Defense Acquisition Board (DAB) review, the Department of Defense (DoD) limited the Army's M1A2 (Block II) program to three improvements. These three improvements include; the Core Architecture, the Improved Commander's Weapons Station (ICWS), and the Commander's Independent

Thermal Viewer (CITV). The three components met DoD's unit cost goal of $3.037 million.

Mr. MILLER. One of the items that you have considered and put in your statement concerns the rapid, deployment of forces. It appears that the way we are going now, we are not considering at least as the most likely contingency fighting a full-scale war, but are focusing on putting out the brush fires quickly as they occur throughout the world.

I am wondering whether you can give us a little more information as to what you are doing in procurement that would be taking this into consideration—to move troops into a given area, put out the brush fire and get back out.

I am not sure with all the equipment we have now whether we have considered adequately in purchasing or in doing R&D, what equipment would be necessary over and above what we have for the rapid reinforcement and putting out the brush fires.

General DAILEY. Yes, sir. Our principal focus for several years has been to ensure that not only did we have equipment that was deployable that could get to the fight, but that had the combat capability to win once it arrived; and to make sure that we had the sustainability to keep them in the fight as long as was necessary.

I think that our weapon systems that we are currently developing and procuring are focused entirely in that direction. It was the most important consideration in our decision to terminate the M-1 buy.

## MINE DETECTION

Mr. MILLER. In another area, in your statement, I noticed that you were speaking of airborne mine detection, and that seems to be high on the priority list for us to attempt to find the mines that might be in the water.

Could you give us a little more detail about that?

General DAILEY. Yes, sir. We have a system in advanced development that uses a laser scanner mounted in an aircraft and we have demonstrated the ability to detect mines in up to ten feet of water. We did this in the Pacific Ocean, which is more turbulent and less conducive to that type of operations, so we are very encouraged with this technology.

We feel it is critical because of the danger that we face in the shallow water where we have to cross this area as part of our amphibious assaults. We feel this program bridges those activities of the Navy for deep-water mines and the Army program for clearing of land mines.

That is why we put our money on the shallow water detection and the airborne detector is proving to be very promising technology.

Mr. MILLER. Do you believe in the future we will be able to detect mines at deeper than ten feet?

General DAILEY. There is no capability from the ten feet level to the shore because of acoustic problems and other difficulties once you get into the very shallow areas.

I am more comfortable with our ability in the deeper water than I am in this area that we are pursuing.

Mr. MILLER. Another area where you are talking about advanced technology transfer demonstrations, I am not sure whether we are talking about technology transfer to other nations or just our service——

General DAILEY. we are speaking of the transfer from R&D procurement. The program is designed to take technology to the Fleet Marine Force, demonstrate what the technology can do, and to give operational commanders an early input as to desirability of developing the technology and transferring it into actual procurement.

Mr. MILLER. Thank you.

Thank you, Mr. Chairman.

## MARINE CORPS ARTILLERY

Mr. DICKS. We understand that the Marine Corps is borrowing some multiple launch rocket systems from the Army for testing. We also understand that the Marines are considering buying a new, light, 155-millimeter howitzer. What are your future plans for procurement, organization, and doctrine for artillery?

General DAILEY. We would like to become lighter in our entire artillery capability. We currently have the M–198, which is a 155-millimeter howitzer and is our principal artillery system. We have a limited number of 105s that are still in the inventory and provide us with a more mobile artillery piece. What we are trying to do for the future is to investigate ways to become lighter, more mobile with artillery that still has the capability to do the job. The 155-millimeter is considered to be capable of meeting all the range and fire power requirements that are necessary for most of the operations in which we would be involved. The M-198 can only be lifted by the CH–53 helicopter in the airborne mode. We would like to see an artillery piece that could be lifted by other means other than the CH–53Es which are in limited in number.

That is one of the principal things driving us towards the lightweight 155-millimeter howitzer. We are looking at two candidates now, both being developed by the United Kingdom, that show some promise in this area.

The borrowing of the MLRS from the Army is to give us the opportunity to look at this weapon system and possible applications to the Marine Corps. It has a tremendous ability to mass fires and provides good mobility for that system because it is its own transporter.

The MLRS is quite a large and heavy system and perhaps is not what we are really looking for in terms of a system that will suit our needs. This will be a program where the Army loans us the systems. We will evaluate them for a couple of years, and then come to some decisions as to which systems we want to pursue.

Mr. DICKS. MLRS, would you take that to shore with your landing craft?

General DAILEY. Probably in the follow-on echelons. I would not see that as first wave.

Mr. DICKS. It is too heavy to go by helicopter?

General DAILEY. Yes, sir.

Mr. DICKS. How much is included in your budget to carry out these plans for artillery?

General **Dailey**. We have $2 million a year to evaluate the MLRS, for the lightweight 155's, we have $1.15 million in 1990 and $3.4 million in 1991 in R&D.

Mr. **Dicks**. What will your program costs in development and procurement be?

General **Dailey**. For the lightweight——

Mr. **Dicks**. Yes, for both the lightweight and the MLRS, if you decide you want to go with that or is that too early to determine?

General **Dailey**. It is too early to determine the procurement costs. There would be no R&D. We would buy the Army version. If I may provide for the record——

Mr. **Dicks**. Fine.

[The information follows:]

The estimated cost for development of the lightweight 155mm Howitzer is $58.7 million and $496.3 million for procurement. As of 28 March 1990, the Marine Corps no longer plans to evaluate the MLRS due to fiscal constraints. We may revisit evaluation of the MLRS should funding become available.

Mr. **Dicks**. Why is a new 155-millimeter howitzer required when the Marine Corps has just recently completed its procurement of the M–198 155-millimeter towed howitzer?

Is it just a question of being light?

General **Dailey**. Yes, sir. We want a howitzer as effective in terms of firepower, accuracy, and payload as the M–198, but which is more mobile. It is strictly a case of weight.

Mr. **Dicks**. Are you involved in the LHX program?

General **Dailey**. No, sir, we are not, but we are watching it.

Mr. **Dicks**. You are pretty good at watching things. You kind of pick up what is good. It sounds pretty smart to me.

General **Dailey**. Thank you, sir.

## MARINE CORPS LIGHT TANKS

Mr. **Dicks**. Of course, if you don't have any money, you have to be smart.

The Marine Corps is planning to test a light armored vehicle equipped with 105 millimeter gun. The Marines are also participating with the Army in testing "off the shelf" light tanks. Is it possible that the Marine Corps would buy both a 105-millimeter LAV and a second light tank procured by the Army?

If so, why?

General **Dailey**. Yes, we would like to procure both. The lightweight 105 is part of the light-armored vehicle family that we are developing. The reason we need it is to provide fire power to these reconnaissance, high-mobility assets, what we call the light-armored infantry battalions.

These are light-armored vehicles with infantry that provide us with high mobility forces for various missions that we may need, but we need some fire power in that capability and that is the purpose of the LAV–105.

The light tank interest would be to replace the M1A1 in the future, not to be used in these light forces.

There are tradeoffs that we must address with respect to the LAV–105. You are looking for fire power, mobility, and ballistic protection. We have selected mobility over ballistic protection, so what we would be looking for in the light tank would be one more suited to the other types of missions that we may face. With the light tank, we would have higher mobility than the M1A1 in relative terms, which would give us better ballistic protection than the LAV–105. We don't envision this light tank slugging it out with armored forces, but it would give us protection to conduct operations short of that. We would have to look at the gun system, but it would probably be a 105mm.

Mr. DICKS. These are not light tanks?

General DAILEY. We would see the light tank as a replacement for the M1A1.

Mr. DICKS. You can afford to have two different systems?

General DAILEY. We wouldn't. We would phase the M1A1 out at the time that we got the light tanks.

Mr. DICKS. You would go first with the light-armored vehicle?

General DAILEY. Yes, sir, which we have in full-scale development now.

Mr. DICKS. What are the Marines and the Army doing to harmonize their requirements for a light tank?

General DAILEY. At this time, we are participating with the Army in a market survey that they are conducting as to available systems to meet this requirement. We have not done anything beyond that.

The Marine Corps was interested in this program prior to the M1A1 procurement. We called it the Mobile Protective Weapons System. This supports our goal of transitioning to a light force that has the combat fire power desired for our contingencies.

The M1A1 is clearly the best tank in the world, but its size is inconsistent with what we are trying to do in terms of our footprint and expeditionary force character.

Mr. DICKS. Is that one of the reasons why you quit procurement of the M–1?

General DAILEY. That is the principal reason; yes, sir.

Mr. DICKS. I guess if somebody looked over your shoulder, they would say you are stopping a program that is moving ahead or was moving ahead until this recent round and then you are kind of betting your chips on something that may happen in the future.

Are you a little nervous about that? Is that a gamble, General?

General DAILEY. Yes.

We have 221 M1A1s coming to us, which will give us a tremendous capability. We have that insurance policy while we pursue the light tank. If sometime in the future we can develop the light tank, we would see that as our replacement for the M1A1. The Army has stopped procurement to go with a follow-on tank and devoting funding to going one step further.

Mr DICKS. But is the Army buying a light tank?

General DAILEY. No. They are looking at the armored gun system, which is not by definition a light tank, but they are looking at several alternatives at this point.

Mr. DICKS. Mr. McDade.

Mr. MCDADE. Thank you very much, Mr. Chairman.

General, we were talking about the tactical operations modules.

General DAILEY. Yes, sir.

Mr. McDade. You indicated to me that money that you had found to plus-up the procurement came from the M–1 line?

General Dailey. Yes, it did.

Mr. McDade. How much money did you take out there?

General Dailey. Seven million dollars.

Mr. McDade. There was no reprogramming request or anything, was there?

General Dailey. It is below threshold.

Mr. McDade. Where did the money come from? The M–1?

I heard you testify that you are going to get the same number of tanks you planned on, you have $7 million less to do it——

General Dailey. We are getting half the number of tanks that we planned when we took the money out.

Mr. McDade. You mean you have the difference between 221 and the cost of 427 lying around over there?

General Dailey. No.

Mr. McDade. The money is coming out of what was appropriated for 221.

General Dailey. All the money is being spent on the tanks. It was out-year money.

Mr. McDade. We are talking about fiscal year 1990. We didn't appropriate the out-year money.

General Dailey. We are in POM 1992, moving money around that was planned, I guess, or budgeted for out-year use, so I have confused the years that we are talking about here.

If I may check—we took the money out because we anticipated a savings in the procurement of the M1A1.

Congress also anticipated that savings and you took the same amount out.

So this is a fairly complicated issue as to the way we have moved this money around.

Mr. McDade. Put it in the record.

[The information follows:]

When the Marine Corps was preparing the intitial input to the FY 1991 President's budget in July 1989, it anticipated a contract savings of $7.0 million in FY 1990 for the M1A1 tank. Therefore, during this time, the Marine Corps realigned the anticipated $7.0 million FY 1990 savings from the M1A1 tank line to the TAOM line. This revised the FY 1990 DoD budget submission for the tank from $396.3 to $389.3 million.

The Congress also anticipated contract savings in the tank program, and in November 1989 appropriated $381.3 million for the M1A1 tank. This action reduced the original FY 1990 tank submission of $396.3 million by $15.0 million.

In order to avoid a double reduction to the tank line as a result of the above two independent actions, the Marine Corps' $7.0 realignment should have been restored to the revised FY 1990 DoD tank controls of $389.3 million prior to reducing the FY 1990 column by the $15.0 million Congressional reduction.

However, during the time allowed to do this in December 1989, the DoD controls for the FY 1991 budget submission were locked. The Marine Corps was consequently prevented from making the above noted adjustment to the revised the FY 1990 DoD tank controls prior to the submission of the the FY 1990 budget to the Congress.

Thus, a combined reduction of $15.0 million by the Congress and $7.0 million by the Marine Corps was made to the revised the FY 1990 DoD tank controls of $389.3 resulting in the FY 1990 tank amount of $374.3 million as shown in the FY 1991 President's budget. The correct action would have been to restore the revised FY 1990 DoD tank controls of $389.3 back to the original budget submission of $396.3 and then reduce this amount by $15.0 million which would have resulted in the appropriated amount of $381.3 million.

Although the FY 1991 budget backup books showed a FY 1990 tank program of $374.3 vice the $381.3 million appropriated by Congress, the Marine Corps intended to rectify this mistake during execution by reprogramming the $7.0 million back into the tank line from the TAOM.

At this time, however, the Marine Corps was reconsidering the role of the M1A1 tank in the Marine Corps' warfighting mission. The result of this reconsideration was a tank requirement of 215 vice 221. The $374.3 shown in the FY 1990 column of the FY 1991 President' Budget for the tank will procure 215 tanks and Marine Corps made the decision to leave the additional $7.0 million in the TAOM line. This latter amount coupled with prior year savings in the TAOM program allowed for the procurement of two additional operational modules in FY 1990.

## AMMUNITION

Mr. McDade. Let's talk about ammunition.

Last year the committee added $25 million to the Marine Corps budget to procure additional ammunition. The committee directed the Marine Corps to submit for prior approval an allocation of this add-on.

When you are going to submit your allocation?

General Dailey. I hope it is here today, sir.

We have forwarded it and I can provide a copy for the record, but it is coming up through official channels.

Mr. McDade. Let us know what your plans are with respect to the $25 million and what criteria you used to allocate funds.

[The information follows:]

The report identifying the allocation of the added $25 million has been forwarded through the appropriate channels. However, the allocation by program and criteria is provided below for your information.

| Item | Millions | Criteria used to allocate funds |
|---|---|---|
| Ctg, 5.56mm ball | $2,400 | Support training and maintain the required level of sustainability. |
| Ctg, 5.62mm linked | 1,100 | Prevent loss in sustainability. |
| Ctg, .50 cal linked | 3,000 | Increase sustainability. |
| Ctg, 60mm illum | 1,000 | Increase sustainability. |
| Ctg, 60mm smoke | 1,100 | Increase sustainability. |
| Ctg, 81mm, HE M821 | 1,000 | Support training and to prevent loss in sustainability. |
| Ctg, 81mm HE M889 | 3,000 | Support training requirements and to maintain the required level of sustainability. |
| Ctg, 120mm TPCSDS-T | 5,000 | Support increase in training requirements. |
| Ctg, 84mm AT-4 | 7,300 | Increase sustainability. |
| Total | 25,000 | |

There is no impact on unit prices and all items are producible.

Mr. McDade. The fiscal year 1991 budget is $284.7 million, an increase of 14 percent above the current year.

Will this funding level sustain training while not reducing war reserves?

General Dailey. No, it won't. I should put it this way: The war reserve that will result from this budget will be 43 to 45 days. This is a general range based upon averages of the various accounts that we have. For example, we have larger quantities of some particular weapons or bullets and we have much lower in other cases.

Mr. McDade. Would you identify your specific deficiencies from below that, General, that fall below the 45-day or whatever you believe is the minimum stock to keep—tell us where those specific binds are that aren't filled up and that you worry over.

General **Dailey**. When we go through allocation of funding for various rounds, we look at our ability to surge. Small arms is the easiest place to surge because of the number of lines that are open and it is common ammunition. So if we have to take a risk for money, we have a tendency to do it in small arms.

[The information follows:]

The FY 1991 budget will not fully satisfy training requirements and will result in a decline of war reserve assets. The following items, by P-1 budget line, will be below the 45 days of ammunition (DOA) by the end of fiscal year 1991:

| P-1 Line | Item | Days of ammunition deficiency |
|---|---|---|
| 1 | 5.56 MM | |
| | —Ball | 1 |
| | —Blank | 11 |
| 3 | Linear Charges | |
| | —Practice | 28 |
| | —Practice from AAV | 27 |
| 5 | 40MM | |
| | —HE, DP | 5 |
| | —Target Practice, Linked | 12 |
| | —Green Smoke | 2 |
| | —White Star Parachute | 7 |
| 9 | 60MM | |
| | —Illumination | 2 |
| | —HE | 6 |
| 10 | 81MM | |
| | —HE, M821 | 2 |
| | —Practice | 5 |
| 26 | Fuze, Proximity, M732A2 | 3 |
| 29 | Rocket, 83MM (SMAW) | 19 |
| 33 | Grenade | |
| | —Hand, Smoke | 6 |
| | —Body, Hand Practice | 21 |

## LIGHT ARMORED VEHICLE (LAV) ASSAULT GUN

Mr. **McDale**. Okay.

Let me direct your attention to the light-armored vehicle assault gun. We are informed that it is a highly mobile, lightly armored, direct fire weapon system for the Light Armored Infantry Battalion. Using the common LAV chassis, the Marine Corps has an ongoing effort to integrate into the turret, a 105-millimeter cannon with an auto loader and fire control system.

In fiscal year 1990, the Marine Corps planned to release a Request for Proposal and then choose two contractors to build two prototypes each for the full scale development phase.

The FSD RFP was to be released in October of 1989. Did that occur in October 1989?

General **Dailey**. Yes, sir.

Mr. **McDade**. The source selection is to be completed by May 1990. Is that still an accurate time frame?

General **Dailey**. It is.

Mr. **McDade**. Good for you. The fiscal year 1990 budget request included $18,977,000 for these actions. Is your current estimate of program costs within this amount of money? Is there any cost growth?

General **Dailey**. For fiscal year 1990—that is correct, sir.

Mr. **McDade**. You don't see any surprises downstream?

General **Dailey**. This is a bit competition-sensitive because of what we are approaching.

Mr. **McDade**. Just give some information to the staff of the committee.

Gneral **Dailey**. We are not going to put any more money into it. What we have is what we are going to spend.

[The information follows:]

At this point in time, it appears that current program costs are accurate for FY 1990. Source selection is ongoing, with award targeted for June 1990. Changes, if any, to the amount required will not be known until the source selection process is completed just prior to contract award.

Mr. **McDade**. The fiscal year 1991 budget request for the assault gun is $22,934,000. This level of funding was based on costs developed by the Army. Is the fiscal year 1991 request of $22,934,000 greater than what you had originally calculated?

Is that a higher number?

General **Dailey**. No, sir.

The Army is working for us on this one and we are completely in sync with them.

Mr. **McDade**. Give us a breakdown of what that level of funding is going to buy. Put that in the record.

[The information follows:]

The fiscal year 1991 funds for the Light Armored Vehicle—Assault Gun will buy two contractor's efforts to fabricate two full scale development prototypes each, (a total of four). Each contractor will mount a government developed EX35 105 millimeter cannon into a turret with an autoloader and fire control system. The full-up turret will then be integrated into a common LAV chassis. The full scale development effort begins with the award of the contract in June 1990 and continues until developmental testing begins in December 1991. In addition, developmental and operational test planning will be completed during fiscal year 1991.

## LAV—AIR DEFENSE

Mr. **McDade**. Regarding LAV air defense, this project will develop a mobile air defense system on a LAV chassis. The weapons system will consist of a rapid fire 25-millimeter gun, stinger standard vehicle missile launcher, and 2.75-inch LAU/68 E/S rocket launcher.

The fiscal year 1990 budget request was $19,666,000. The fiscal year 1991 budget request is $18,019,000.

The fiscal year 1990 program was to include the completion of the prototype by the end of this month and developmental testing II in April. Is that still your schedule?

General **Dailey**. The schedule has slipped three months. I might mention that it was my decision to slip the schedule because we are trying to maintain the competition in this program. One of the contractors was not ready and I decided to slip the program to put them both into testing at the same time.

Mr. **McDade**. It sounds like a wise decision.

What about the operational testing? Has that slipped because of it?

General Dailey. I don't think so.

Mr. McDade. You are still talking March 1991?

General Dailey. Yes, sir.

Mr. McDade. January 1995 is the planned IOC?

General Dailey. Yes, sir.

Mr. McDade. What amount will be invested in the program by 1995?

General Dailey. If I may provide that for the record.

Mr. McDade. Please.

[The information follows:]

If the program proceeds as planned with an Initial Operational Capability (IOC) of January 1995, $99.1 million will have been invested in RDT&E, Navy and $340.2 million in procurement.

### ADVANCED ASSAULT AMPHIBIOUS PROGRAM

Mr. McDade. The advanced assault amphibious program will design, develop, procure, and field a successor to the Marine Corps' current amphibian, AAV7A1. The mission requirements for the AAA include an over-the-horizon forcible entry capability. This is a system designed for the threat of the year 2000.

It is our understanding that there are 11 different candidates which will be examined to meet this requirement.

When will a decision on the final candidate be made?

General Dailey. April of 1991, sir. That is when we will reach milestone I.

Mr. McDade. The fiscal year 1991 budget request includes $26,348,000 for this program.

What will this funding level buy?

General Dailey. Fiscal year 1990 funds will complete the conceptual design contracts, requirements and tradeoffs analysis, characteristics of performance, supportability, and cost schedule and risk. The fiscal year 1991 budget request will begin the design and fabrication of the two prototypes for DT/OT testing.

We will present the results to the Defense Acquisition Board in preparation for our hearing on milestone I in April of 1991.

Mr. McDade. Will the vehicle include the Congressionally mandated Stratified Charge Rotary Engine?

General Dailey. That is one of the propulsion alternatives that will be included in the demonstration vehicles.

Mr. McDade. So it is insofar as you are going to go through it as a candidate——

General Dailey. We have two other propulsion alternatives and it will be considered as one of the three.

Mr. McDade. What are the other two?

General Dailey. We have an MTU, a diesel engine built by Daimler-Benz of West Germany and a combination of a Cummins diesel and a jet engine, a T-700, which is used on one of our helicopters.

Those are the three alternatives that are most likely.

Mr. McDade. A lot of things on the table.

Milestone 1, slipped from the original schedule of the second quarter of 1991 to the third quarter of 1991.

Can you tell us why this slip happened, General?

General DAILEY. If I may provide that for the record also, sir.

Mr. McDADE. Fine, General.

[The information follows:]

The delay in Milestone I from 2nd to 3rd quarter 1991 resulted from a Defense Acquisition Board (DAB) decision at milestone 0 to review all of the eleven options for an advanced amphibious assault capability. Additionally, the Marine Corps was tasked to conduct cost and trade off analyses among all eleven options. This requirement increased the length of the concept exploration/definition phase for conceptual design completion.

Mr. McDADE. Thank you for your testimony, General.

Thank you, Mr. Chairman.

Mr. DICKS. Mr. Miller?

Mr. MILLER. No further questions.

Mr. DICKS. Thank you, General.

You did an outstanding job, sir. We appreciate your very lucid remarks. We will have other questions for the record.

With that, the committee will be adjourned until 1:30 p.m. this afternoon.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

## MARINE CORPS ARTILLERY

*Question.* The Marine Corps is borrowing some Multiple Launch Rocket Systems from the Army for testing. We also understand that the Marines are considering buying a new, light, 155mm howitzer. What are your future plans for procurement, organization and doctrine for artillery?

Answer. The current M109A3 and M110A2 self-propelled general support howitzers lack both tactical and strategic mobility. Additionally, these systems are aging rapidly and are significantly more expensive than towed systems to operate and maintain. The Marine Corps plans on replacing these system with towed systems common to the direct support battalions.

Doctrine: There is a growing requirement to support additional maneuver units with the Marine Air Ground Task Force (MAGTF) and limited artillery assets to provide that support. Manpower and fiscal constraints mandates a doctrinal change to give the Ground Combat Element Commander the flexibility to assign any tactical mission to any artillery unit. General Support Battalions will therefore be provided adequate liaison and forward observer assets to enable them to perform either a direct or general support mission.

Procurement: The Marine Corps will initiate development efforts on the LightWeight 155 Howitzer beginning in fiscal year 1991. The program will include a competitive shoot-off in fiscal year 1992 followed by a full scale development (FSD) phase. Initial weapon system procurement is estimated to begin in fiscal year 1998.

As of 28 March 1990, the Marine Corps no longer plans to evaluate the MLRS due to fiscal constraints. We may revisit evaluation of the MLRS should funding become available.

## MARINE CORPS LIGHT TANKS

*Question*. The Marine Corps is planning to test a Light Armored Vehicle (LAV) with a 105mm gun. The Marines are also participating with the Army in testing "off the shelf" light tanks. How would the Marine Corps use a light tank and/or a 105mm LAV?

Answer. The mission of the light tank would be to provide armor-protected large caliber direct fire in support of dismounted and mechanized infantry operations. As an infantry support system, the light tank's armor protection, direct fire system, and enhanced mobility enable the infantry to extend and improve its normal capability in countering an opposing force. Light tanks provide the infantry commander with accurate fire at the critical times. The LAV-105 is not designed to take on heavy mechanized forces but is designed to provide organic large caliber direct fire in support of those missions assigned to Light Armored Infantry (LAI) Battalion, i.e. reconnaissance, security, and economy of force operations. The LAV-105's capability to provide large caliber direct fire enhances the employment, effectiveness, and survivability of other systems, i.e. LAV-25 and TOW variants, within the LAI Battalion.

*Question*. What are the testing and decision milestones for the 105mm LAV and the light tank?

Answer. The light tank plan of action and milestones are being developed and are not available at this time. The LAV-105 testing and decision milestones are:

Development Test II—May 1992-January 1993.
Operational Test II—May 1993-July 1993.
Milestone III (Production)—January 1994.

The milestone schedule recently changed as a result of industry's early feedback on the Request for Proposal released in October 1989, with proposals received in February 1990.

## ASSAULT AMPHIBIOUS VEHICLE 7A1 PRODUCT IMPROVEMENT

*Question*. Last year the Marine Corps testified on its need for a Product Improvement Program (PIP) for the current amphibious vehicle (AAV7A1). It was stated that this program was necessary to test mine clearance kits and minor engineering changes. Last year, the amount projected for this program was $11,100,000 for fiscal 1990 and $9,700,000 for fiscal year 1991. Recent budget documentation for this program show costs of $12,100,000 for 1990 and $10,800,000 for 1991. What caused this growth?

Answer. The fiscal year 1991 budget request shows costs of $10,767,000 for fiscal year 1990 and $9,817,000 for fiscal year 1991. No growth was experienced in this program. The dollar values of $12.1 million and $10.8 million reflected on the recent budget documentation were for fiscal years 1989 and 1990 respectively.

*Question*. Explain how the PIP for the current amphibious vehicle will assist in the design of a possible new vehicle for the Advance Amphibious Assault program.

Answer. We are currently pursuing technologies which will improve the propulsion and suspension systems. Not only will these technologies correct operational deficiencies in the current vehicle, but will also have direct application to the most likely candidate for the new assault amphibian vehicle and provide significant risk reduction to development of the Advanced Amphibious Assault (AAA) program. In addition, technologies being pursued and demonstrated in other areas, such as the High Water Speed Technology Demonstrator, Propulsion System Demonstrator and the Stratified Charge Rotary Engine are directly transferrable to the AAA program.

*Question.* At what point will the AAV7A1 reach obsolescence?

Answer. It is anticipated that the AAV7A1 will reach obsolescence by the year 2005.

## COUNTERMINE PROGRAMS

*Question.* Last year the Marine Corps testified that 13 percent of the fiscal year 1990 budget was dedicated to countermine measures. What is the level of countermine programs funded in the fiscal year 1991 budget request?

Answer. In fiscal year 1991, $51,703,000 (17%) of the RDT&E budget is for countermine measures.

*Question.* Provide a list of these programs and funding profiles by P-1/R-1 line items.

[Dollars in millions]

| | Project NR. | Title | Fiscal year 1991 |
|---|---|---|---|
| R-1 | | | |
| 094 | C0077 | Mine/Warfare (Adv) | 1.155 |
| 094 | C1968 | Mine Detection | — |
| 023 | C2078 | Mine Neutralization | 2.455 |
| 023 | C2079 | Standoff Mine Detection | 10.178 |
| 176 | C1969 | Mine Neutralization | 3.078 |
| 176 | C1970 | Surf Zone Mine Clear | 27.947 |
| 006 | ExpDev | Mine Det Mech | 3.415 |
| 006 | ExpDev | Land Mine Counter Measure | 3.475 |
| Countermine projects total | | | 51.703 |
| P-1 | | | |
| 3 | | Linear Charges, All Types | .982 |
| 33 | | Rocket Motor, 5 Inch (Items Less Than $2 Million). | 1.587 |
| Total procurement | | | 2.569 |

## MK-19 40MM GRENADE LAUNCHER

*Question.* The budget includes $17.2 million for the procurement of 1,181 MK-19 40mm grenade launchers. The Department of Defense press release for the 1991 budget states that this program has been terminated. Why are you continuing to buy MK-19's when the progam has been terminated?

Answer. The Department of Defense Press Release concerned only the U.S. Army fiscal year 1991 and later procurements. Marine fiscal year 1991 and fiscal year 1992 procurement plans remain valid.

*Question.* Last year you forecast buying only 321 MK-19's in fiscal year 1991. Why has the quantity tripled?

Answer. With the loss of our fiscal year 1990 procurement (123 weapons), the fiscal year 1991 procurement of 321 MK-19's would have placed this item at 58% of the acquisition objective. The Marine Corps internally reprogrammed funds to take advantage of the Army's contract for MK-19's. The current request will bring the Marine Corps to 71% of the acquisition objective.

*Question.* The manufacturer of this weapon has had significant delivery problems. What is the status of correcting these problems and what is the delivery period for the weapons being funded in fiscal year 1991?

Answer. Monthly production rate problems at Saco Defense Industries appear to be solved. In January 1990, the government accepted 241 weapons. In February 1990, 198 weapons were accepted. Both these quantities exceeded projected monthly rates of 150. We continue to monitor the production rates to ensure timely delivery of the weapons. The weapons being funded in fiscal year 1991 are scheduled for delivery during April 1992 and will be completed in 6 months.

*Question.* What is the impact of the Army's withdrawal from this program on the current multiyear contract and the unit price which the Marine Corps will have to pay for the weapons?

Answer. There will be no unit cost impact on the Marine Corps. The Marine Corps buys were always options to the Army's base contract. The Army can use our buys to reduce the cancellation penalties associated with their contract termination.

## TACTICAL AIR OPERATIONS MODULE

*Question.* What is the procurement strategy for TAOM for fiscal 1990 and beyond?

Answer. The fiscal year 1990 procurement will be a sole source firm fixed price contract with options for fiscal year 1991 and 1992 procurements.

*Question.* Provide the procurement profile for TAOM for the years beyond 1991.

Answer. The current procurement profile is five TAOMs in fiscal year 1992 at a cost of $51.2 million. There are no scheduled buys beyond FY 1992.

## JOINT SERVICE IMAGERY PROCESSING SYSTEM (JSIPS)

*Question.* The JSIPS is a computer system which is carried in a modular, transportable facility. The system receives and exploits Infrared (IR) and Electo-Optical (EO) imagery from air reconnaissance systems and satellites, and provides this data in a visual form. What are your fiscal year 1991 plans for the JSIPS?

Answer. Our fiscal year 1991 plans are to continue joint development with the U.S. Air Force and U.S. Army to downlink tactical, theater, and national imagery in near-real time.

*Question.* There was a fiscal year 1990 internal realignment of $1,099,000 from JSIPS to the Position Location Reporting System. What effect will this realignment of funds have on the 1990 and 1991 JSIPS program?

Answer. There may be some JSIPS program delay, however, it cannot be determined at this time. It is anticipated that the current funding level will allow us to achieve Milestone III in the 1st quarter of fiscal year 1992, as scheduled.

*Question.* What is the schedule for JSIPS production/procurement?

Answer. Initial Operational Capability (Full Scale Engineering Model)—4th quarter fiscal year 1991.

Milestone III (Approval for Production) 1st quarter fiscal year 1992.

Full Operational Capability—fiscal year 1999.

## POSITION LOCATION REPORTING SYSTEM

*Question.* The Marine Corps proposed to reprogram $15.2 million of the $54.8 million which was appropriated last year for the Position Location Reporting System (PLRS). The justification says that the program has been "restructured to terminate procurement". What has happened to the Marine Corps PLRS program?

Answer. The Position Location Reporting System (PLRS) was reviewed in April 1989, to consider the follow-on procurement of PLRS for the Marine Corps. Based upon a review of requirements and operational experience, during the Marine Corps Program Decision Meeting (MCPDM IIIB), the decision was to not procure additional PLRS master stations and user units of the current configuration, but to pursue several product improvement efforts to include downsizing the Master Station, communications enhancements, and the PLRS/Global Positioning System (GPS) interface unit. Funds were also applied toward the installation of PLRS in Marine Corps aircraft, to procure high priority Fleet Marine Force End User Computing equiment and, ammunition.

*Question.* What additional PLRS procurement funds are now not needed?

Answer. There are no excess PLRS procurement funds. The funds shown in the fiscal year 1991 budget request for fiscal years 1989 and 1990 are required to buy enhanced signal message processors for existing PLRS user units and a variety of vehicle installation kits.

*Question.* How much has the Marine Corps spent on PLRS procurement to date? How much has been spent to procure equipment that will not now be used?

Answer. From fiscal year 1983 to 1990, $167.7 million has been spent on procurement. All PLRS equipment that has been procured will be used by operational forces.

*Question.* While the procurement for PLRS has been eliminated for fiscal year 1991, $1,099,000 in R&D has been reprogrammed from the Joint Service Imagery Processing System (JSIPS) to a higher priority PLRS. Why is PLRS enough of a priority to reprogram funds from JSIPS but not of high enough priority to procure?

Answer. The research and development efforts being pursued are to make major improvements in the currently fielded system. These efforts include downsizing the Master Station, communication enhancements and Global Positioning System (GPS) interface, which were identified as high priority requirements by the Fleet Marine Force (FMF) commanders. These efforts were considered to be of such priority as to warrant reprogramming from the JSIPS program. It is anticipated that the impact to the JSIPS program will be such that Milestone III will still be achieved by the 1st quarter of fiscal year 1992. Although the FMF commanders fully utilize the currently fielded system, they strongly recommended the downsizing effort rather than procuring additional systems in the current configuration. This is in keeping with the Marine Corps' continuing efforts to pursue a lighter, more mobile force.

*Question.* Why was $1,099,000 transferred from JSIPS to PLRS?

Answer. The efforts to develop a downsized PLRS Master Station, the communication enhancements, and the Global Positioning System Interface Unit were determined to be of a higher priority for the Marine Corps. Additionally, it is anticipated that the reduction in the JSIPS program will still allow achievement of Milestone III by 1st quarter of fiscal year 1992.

*Question.* Since procurement has been cancelled, what is the requirement to continue R&D?

Answer. The R&D effort is a major improvement of the currently fielded system. Specifically, the PLRS PIP consists of a downsized Master Station (DSMS), the PLRS communication enhancement (PCE) and the Global Positioning System (GPS) interface unit (GPSIU) all of which will require R&D funding.

Housed in a High Mobility Multipurpose Wheeled Vehicle (HMMWV), the DSMS will possess the tactical mobility required to support the Marine Air Ground Task Force (MAGTF) during times of rapid advance. Functionally, it is equivalent to the fullsized master station, but will be delivered in a smaller, lighter, and more mobile package. This effort will require rehosting the PLRS software on a new smaller tactical computer. This is in keeping with the Marine Corps' continuing efforts to pursue a lighter, more mobile force.

The PCE is a product improvement for PLRS that will provide a communication overlay to the PLRS radio network. PCE will use decentralized network management, operating independently from the PLRS master station. By exploiting timeslot and frequency channel resources not required for standard PLRS operations, PCE will add a robust, data communications capability that can be used to transmit command and control (C2) data and PLRS position location information between designated C2 terminals. The PCE deliverable will consist of hardware and firmware that will be retrofitted into a selected number of fielded basic user units.

The GPSIU is being developed to automatically interface a GPS receiver with a PLRS user unit. This will facilitate rapid and accurate employment of PLRS reference units in the field and at the same time anchor the PLRS community to the GPS community.

*Question.* How much of the $34,053,000 budgeted in 1991 is for PLRS?

Answer. The $34,053,000 is the amount budgeted in fiscal year 1991 for program element 26625M Marine Corps Intelligence Systems (Operational Systems). None of these funds are for PLRS. The fiscal year 1991 PLRS budget request in the Research, Development, Test and Evaluation, Navy appropriation is $8,237,000 under program element 26626M Marine Corps Command/Control/Communication Systems (Operational Systems), Project C2035 PLRS/

NAVSTAR. The remaining $170,000 in the project is for the NAVSTAR Global Positioning System.

*Question.* What are the development and procurement milestones for the restructured PLRS program?

Answer.

| Milestone | Date |
|---|---|
| A. Downsized Master Station (DSMS): | |
| Milestone III (Approval for Production) | 1st quarter. FY 1994. |
| Initial Operational Capability | 4th quarter. FY 1996. |
| Full Operational Capability | 4th quarter. FY 1998. |
| B. PLRS Communication Enhancement (PCE) | |
| Milestone III (Approval for Production) | 2nd quarter. FY 1993. |
| Initial Operational Capability | 4th quarter. FY 1995. |
| Full Operational Capability | 4th quarter. FY 1997. |
| Global Positioning System Interface Unit (GPSIU) | |
| Milestone III (Approval for Production) | 1st quarter. FY 1992. |
| Initial Operational Capability | 4th quarter. FY 1995. |
| Full Operational Capability | 4th quarter. FY 1997. |

*Question.* What are the development and procurement funding profiles for the restructured PLRS program?

Answer.

[In millions of dollars]

| | Fiscal year— | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | Compl |
| PMC | 27.6 | 23.6 | 0.0 | 0.0 | 0.0 | 4.0 | [1] 18.5 | TBD |
| R&D | 0.5 | 1.3 | 8.2 | 9.2 | 6.7 | 4.0 | 0.0 | 0.0 |

[1] Planning figure only.

Note: $6.9 million previously identified to be reprogrammed to R&D is no longer required as a result of a recent agreement with the Navy to pursue a cooperative development program for the PLRS program. The $6.9 million is currently identified as a DoD reprogramming offset.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, APRIL 24, 1990.

# CHEMICAL WEAPONS AND DEMILITARIZATION

## WITNESSES

HON. SUSAN LIVINGSTONE, ASSISTANT SECRETARY OF THE ARMY FOR INSTALLATIONS, LOGISTICS AND ENVIRONMENT

DR. BILLY RICHARDSON, DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE FOR CHEMICAL MATTERS, OFFICE OF THE SECRETARY OF DEFENSE

MAJ. GEN. LOUIS DEL ROSSO, U.S. ARMY, DIRECTOR OF SPACE AND SPECIAL WEAPONS, AND RETROGRADE TASK FORCE, OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS

COL. (P) WALTER BUSBEE, U.S. ARMY, PROGRAM MANAGER FOR CHEMICAL DEMILITARIZATION

CAPT. LARRY D. PFITZENMAIER, U.S. NAVY, PROGRAM MANAGER FOR BIGEYE BINARY CHEMICAL WEAPONS

BRIG. GEN. C. JEROME JONES, U.S. AIR FORCE, DEPUTY DIRECTOR FOR STRATEGY AND POLICY, J-5, STRATEGIC PLANS AND POLICY, ORGANIZATION OF THE JOINT CHIEFS OF STAFF

## INTRODUCTION

Mr. **MURTHA**. The Committee will come to order. This afternoon, the Committee considers the budget for chemical programs of the Department of Defense. These programs include the destruction of chemical weapons and munitions, the production of modern binary chemical weapons, and the procurement of defensive chemical equipment. The principal witnesses are Dr. Billy Richardson, Deputy Assistant to the Secretary of Defense for Chemical Matters, and Mrs. Susan Livingstone, Assistant Secretary of Defense for Installations, Logistics, and Environment. They are supported by back-up witnesses who have expertise in specific program areas to be discussed today.

Madam Secretary, you have taken over an area in which we have a great interest. We have given a lot of advice and tried to make this program work better. We hope in working with you that we will have some input. Most of our predictions and suggestions have turned out to be accurate. We have done a number of studies and we are still not satisifed that we are moving in the right direction. Dr. Richardson and Mrs. Livingstone, your complete statements will be made part of the record. You may summarize them and then we will proceed to questions.

This hearing is being held in executive session because of the classified nature of the material to be discussed. Please proceed.

## SUMMARY STATEMENT OF MRS. LIVINGSTONE

Mrs. **LIVINGSTONE**. I look forward to working closely with you on this program, Mr. Chairman.

Good afternoon, Mr. Chairman and members of the committee. We appreciate the opportunity to appear before you today to discuss the United States Chemical Stockpile Disposal Program.

With me today is Mr. Michael Owen, my Deputy for Chemical Demilitarization who co-chairs, along with FEMA, the Emergency Response Steering Committee. Also with me today are Major General Louis Del Rosso, Director of Space and Special Weapons in the Office of the Army Deputy Chief of Staff for Operations and Plans and the head of the Chemical Retrograde Task Force; and Colonel Walter Busbee, soon to be promoted to Brigadier General, the Program Manager for Chemical Demilitarization.

After my statement, Dr. Billy Richardson will have a brief opening statement. With your concurrence, Mr. Chairman, I request that my full statement be inserted in the record and I will only make some brief opening remarks.

## JACADS FACILITY

As you are aware, we are approaching an historic moment in the Chemical Stockpile Disposal Program. Within the next few weeks, the Army hopes to begin to destroy live chemical agents with the initiation of the operational verification test at the Johnston Atoll Chemical Agent Disposal System, JACADS.

Readying the JACADS facility for the operational verification test has been a formidable task. As with any complex plant, we have experienced mechanical and operational difficulties. This is not unusual and the problems are being solved. Nonetheless, I want to assure you that the first priority and commitment of everyone involved in this program has been and remains total safety for our workers and the public as well as full protection of the environment. No destruction will occur at JACADS until the workers and the equipment are ready to perform this mission safely.

## PROGRAM ACCOMPLISHMENTS

Since we appeared before you last year, several major program accomplishments have been achieved. We completed the entire disposal program for the 94,000 pounds of hallucinogen BZ at Pine Bluff Arsenal, Arkansas, without incidence. We destroyed BZ without any harm to our workers, the local community, or the environment. We are now decontaminating the plant and readying it for closure in June 1990.

Also, in 1989, we awarded two major contracts. The first was awarded last June and is for the Chemical Demilitarization Training Facility, which will be constructed at Aberdeen Proving Ground, Maryland, to train all of the workers for our disposal facilities.

Then in September, we awarded a contract for the construction and operation of the disposal facility at Tooele Army Depot, Utah, which is the first chemical disposal facility of eight to be constructed in the United States.

Also, as a result of an agreement made between President Bush and Chancellor Kohl of the Federal Republic of Germany, we are working on a program to remove the United States unitary chemical weapons currently stored in Germany.

## CHEMICAL STOCKPILE DISPOSAL PROGRAM

The size and complexity of the Chemical Stockpile Disposal Program continues to grow. This year, for example, in addition to concentrating on initiating the operational verification test for JACADS and constructing the training and Tooele disposal facilities, the Army also restarted, and will continue, the test and development program for the cryofracture/incineration process. At the conclusion of this 18-to-24-month test period, an assessment will be made to determine whether or not a cryofracture/incineration facility is needed.

The fiscal year 1991 program that is now before the Congress presents even greater challenges and opportunities for a successful Chemical Stockpile Disposal Program as we continue to progress from the planning to the execution phase of this program.

During this time frame, we plan to complete the operational verification test of JACADS and start full-scale operations of that facility; complete the European Retrograde Program; and award a contract for the construction and operation of the disposal facility to be constructed at Anniston Army Depot, Alabama.

Last December, when I transmitted the Army's annual report to the Congress on the Chemical Stockpile Disposal Program, I informed you that it was improbable we would be able to meet the April 1997 completion deadline. We now know that the Army will be unable to complete the Chemical Stockpile Disposal Program before December 1998. We have provided copies of the revised schedule to you and request your support for a legislative revision to the program completion date.

Ensuring that the Chemical Stockpile Disposal Program is successfully and safely accomplished is a team effort that includes not only the various offices within the Departments of the Army, Defense and other Federal agencies, but also the Congress as well.

We appreciate fully and thank you for your help and your continued support of this extremely important national program.

That concludes my opening remarks, Mr. Chairman.

Dr. Richardson has a brief opening statement and at the conclusion of that, we are prepared to answer any questions you and the committee might have.

Mr. MURTHA. Thank you, Madam Secretary.

[The statement of Mrs. Livingstone follows:]

RECORD VERSION

STATEMENT BY

MRS. SUSAN LIVINGSTONE

ASSISTANT SECRETARY OF THE ARMY

(INSTALLATIONS, LOGISTICS AND ENVIRONMENT)

BEFORE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

APRIL 24, 1990

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE APPROPRIATIONS
COMMITTEE

### HONORABLE SUSAN LIVINGSTONE
Assistant Secretary of the Army
(Installations, Logistics and Environment)

Susan Livingstone was appointed to the position of Assistant Secretary of the Army for Installations, Logistics and Environment on November 20, 1989. In her current position, she is the principal advisor and assistant to the Secretary of the Army for Department of the Army policy and activities in the areas of installations, logistics and environment. She also oversees the commercial activities program throughout the Department of the Army and the Chemical Demilitarization program for the Department of Defense.

In addition to these responsibilities, Mrs. Livingstone exercises oversight of the Civilian Marksmanship Program, Kwajalein Missile Range matters and military support activities related to civilian law enforcement, domestic terrorism, drug interdiction, disaster relief, and civil disturbances. Mrs. Livingstone also serves as the interface between the District of Columbia National Guard, the Department of the Army, and the District of Columbia Government.

Mrs. Livingstone joined the Veterans Administration in November 1981 as Executive Assistant to the Associate Deputy Administrator for Logistics. On February 22, 1985, she was appointed Associate Deputy Administrator for Logistics of the Veterans Administration. On December 16, 1985, Mrs. Livingstone was appointed Associate Deputy Administrator for Management and served in that position as well as that of Acting Associate Deputy Administrator for Logistics until April 27, 1986. She then resumed her duties as Associate Deputy Administrator for Logistics. She was responsible for policy-level management and oversight of the Agency's construction, procurement and supply, administrative support, environmental affairs, and small and disadvantaged business utilization programs.

Mrs. Livingstone joined the Executive Branch of the government in July 1981 as Deputy Director of Legislative Liaison for the Community Services Administration. Prior to that, she worked for over nine years in the legislative branch of the government, first as legislative and press assistant for Congressman Richard H. Ichord, and for six years as Administrative Assistant. Subsequently, she served as a consultant to Congressman Wendall Bailey. From February 1969 to September 1970, Mrs. Livingstone served as a research assistant to Senator Mark O. Hatfield.

Mrs. Livingstone has an A.B. degree from the College of William and Mary (1968), an M.A. degree in Political Science from the University of Montana (1972), and a Master of Arts in Law and Diplomacy (M.A.L.D.) from the Fletcher School of Law and Diplomacy, where she is currently a Ph.D. candidate.

Born in Missouri and raised in an Air Force family, Susan Livingstone is married to Neil C. Livingstone of Helena, Montana.

## STATEMENT OF MRS. SUSAN LIVINGSTONE

Mr. Chairman and Members of the Committee, it is a pleasure for me to appear here today to discuss the United States Chemical Stockpile Disposal Program (CSDP). With me is Major General Louis Del Rosso, Director of Space and Special Weapons, Office of the Deputy Chief of Staff for Operations and Plans and the Director of the Chemical Retrograde Task Force. Also with me is the Program Manager for Chemical Demilitarization, Colonel Walter Busbee, soon to be promoted to Brigadier General. I mention this fact since Congress has directed that the management of the CSDP be under a general officer. We appreciate the support you and your committee members have provided to this important program and look forward to continuing to work closely with you as we progress through safe and environmentally sound disposal of this nation's stockpile of unitary chemical weapons.

### BACKGROUND AND OBJECTIVE OF THE CHEMICAL STOCKPILE DISPOSAL PROGRAM

Since World War I, the United States has maintained a stockpile of unitary chemical weapons as a deterrent against enemy use on our troops. Unitary chemical weapons production continued in the United States until 1969 when President Nixon directed a unilateral halt to our production. Since no unitary chemical weapons have been produced since that date, the newest U. S. unitary chemical munitions are over 21 years old.

Initially, as these old weapons became obsolete, they were destroyed by the then accepted methods of ocean burial and open pit burning. In 1970, this practice was halted, because ocean dumping and open pit burning were no longer considered environmentally safe or acceptable methods for destroying chemical weapons. Since 1970, as other portions of the chemical stockpile were classified as obsolete and no longer militarily useful, the Army destroyed those munitions by chemical neutralization and incineration in complex state-of-the-art (for that time) plants. This destruction took place at Rocky Mountain Arsenal, Colorado, and Tooele Army Depot, Utah, in the 1970's and resulted in no harm to the workers, public or the environment. It was during this period, that the Army recognized that chemical neutralization was an inferior destruction process to incineration in terms of overall efficiency and the amount of waste produced.

In 1982, the Department of the Army determined that the nerve agent-filled, M55 rocket was no longer militarily useful and should be destroyed. Since there are almost a half million of these rockets stored at six chemical storage sites, the Army started a program for destroying these rockets, calling it the M55 rocket disposal program. In 1985, at the Army's request, Congress approved funds to build the first of these M55 rocket disposal facilities at Johnston Island.

In late 1985, Congress passed Public Law 99-145, the FY 1986 Defense Authorization Act. This law directed, in part, that the Department of Defense undertake the following actions:

- destroy at least 90% of the United States stockpile of lethal chemical agents and munitions by September 30, 1994;
- provide maximum protection for the environment and public;
- dismantle disposal facilities when chemical disposal is completed;
- set up a management organization headed by a general officer to conduct the disposal program; and
- fund the disposal program in a separate Department of Defense account.

Public Law 99-145 was subsequently amended by Public Law 100-456, which extended the disposal completion date to April 30, 1997.

Public Law 99-145 required a complete revision of the Army's M55 rocket disposal program. The Chemical Stockpile Disposal Program (CSDP) was established for the purpose of destroying the complete unitary chemical stockpile.

The Office of the Program Manager for Chemical Demilitarization (PMCD), headquartered in the Edgewood area of Aberdeen Proving Ground, Maryland, was created in 1986 to carry out the CSDP. The PMCD developed an initial disposal concept plan in March 1986 to meet the requirements of the law. That plan was subsequently revised in 1988 and forwarded to the Congress as an implementation plan. The PMCD also initiated a programmatic environmental impact statement (PEIS) for destroying the stockpile within the United States. The PEIS was completed in January 1988 and a Record of Decision was made in February 1988 to destroy the chemical agents and munitions on-site without transporting them off the installations.

The Department of the Army, as the Department of Defense's Executive Agent for this program, has proceeded on a necessarily lengthy but orderly path to ensure a safe, complete disposal program. As this testimony details, this path has included extensive environmental research and impact assessments; detailed development of evaluation, testing and emergency procedures; comprehensive Federal, state and local community involvement; development of extensive safety and security features; and design, construction and, in the near future, operation of a full-scale disposal facility at Johnston Island in the Pacific, which will serve as a model facility for future chemical agent disposal plants in the United States.

Today we are nearing the beginning of what the primary objective of the CSDP is all about--destruction of the unitary chemical stockpile. The Johnston Atoll Chemical Agent Disposal System (JACADS) is scheduled to go "hot" within the next four weeks with the destruction of nerve agent-filled (GB) M55 rockets. This is a critical moment for the program and one which we approach with confidence that the mature technological process we will use will ensure safe and efficient chemical destruction. Schedules tend to become important in a program such as this, but every individual associated with the Chemical Stockpile Disposal Program is committed to safety and environmental protection first. No destruction will occur at JACADS until we can certify the readiness of the people and the equipment.

The mission is clear. The tasks are difficult, but doable. The Army plans to construct eight chemical disposal facilities within the United States modeled on the JACADS facility and tailored to the chemical stockpiles stored at each location, if supported by site-specific environmental impact statements. The sections that follow discuss disposal locations, schedules and other important aspects of the Chemical Stockpile Disposal Program.

## CHEMICAL AGENT MUNITIONS DISPOSAL SYSTEM

The Chemical Agent Munitions Disposal System (CAMDS) is the Army's prototype chemical disposal facility located at Tooele Army Depot, Utah. CAMDS, which has been operational since September 1979, was designed and built as a research, development and demonstration facility to test procedures and equipment for chemical agent destruction. The facility has been used to test the munition processing equipment; furnaces; and pollution abatement and control systems with actual chemical-filled munitions prior to placement in the Johnston Atoll Chemical Agent Disposal System (JACADS). The furnace systems of the CAMDS facility are approximately one-third the size of JACADS furnaces.

Testing in FY 1991 will continue in support of the JACADS facility. Incineration of mustard in the liquid incinerator, along with testing of the multipurpose demilitarization machine and the metal parts furnace using mustard-filled munitions, will take place in FY 1991. Testing in support of the Resource Conservation and Recovery Act (RCRA) requirements using nerve agent surrogates in the liquid incinerator will also be conducted.

Several tests to support the cryofracture program will also be conducted at CAMDS in FY 1991. Included in the CAMDS test schedule is incineration of:

- cryogenically cooled mixtures of metal parts and agent
- ambient temperature agent from bulk containers in the deactivation furnace

## JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM

The Johnston Atoll Chemical Agent Disposal System (JACADS) is very important to the program because it is the first of nine chemical disposal facilities that will be used to destroy this nation's unitary chemical stockpile. Throughout the past year, the Army has been testing the individual plant equipment and systems. We have recently started our operational readiness evaluation which is designed to determine when the facility will be ready to start destroying chemical weapons. We hope to start soon, but no agent will be introduced into JACADS until we are convinced that the process is working safely and all of the workers are fully trained and have demonstrated the necessary proficiency.

Since JACADS is a complex chemical industrial facility and the first of its kind to be built, it is natural to expect some technical problems, and we have had them. The Army has been working closely with the contractor and its parent headquarters to ensure that the problems are solved and the solutions tested prior to certifying that the facility is ready for operation.

The first scheduled operation at JACADS is the Congressionally-mandated Operational Verification Test (OVT). The test will verify that the disassembly/incineration process can safely destroy the different agents and types of chemical munitions in the United States' unitary chemical stockpile while meeting all Federal and state safety and environmental requirements. The purpose of this test is to verify the process, not to meet specified throughput rates. OVT is scheduled to run for 16 months and is divided into four phases. During each phase, a different chemical agent or different type of chemical munition will be destroyed.

OVT is an important landmark because the successful live agent destruction at JACADS and the verification of the destruction process will allow the program to continue with its plan to operate other disposal facilities within the United States.

The JACADS plant will destroy 6.6% of the agent tonnage in the U. S. chemical stockpile.

## CHEMICAL DEMILITARIZATION TRAINING FACILITY

In June 1989, the Army awarded a contract to General Physics of Columbia, Maryland, to construct and operate a Chemical Demilitarization Training Facility (CDTF) at Aberdeen Proving Ground, Maryland. This facility will be used to train the managers and workers of all future chemical disposal facilities. Trainees will use the same type of equipment found in the actual plants, with the exception of the furnace systems which will be simulated. The furnace systems are costly, not necessary to the training program and would require extensive environmental permits to be developed.

The workers will be taught the correct operations of each piece of equipment and steps necessary to correct system failures. Control systems will operate as in the real plants, allowing workers to train under simulated plant upset conditions. Only training munitions and simulated agent will be used for training in this facility. The first plant to use workers trained at this facility is under construction at Tooele Army Depot.

## TOOELE ARMY DEPOT DISPOSAL FACILITY

In September 1989, the Army awarded a contract to EG&G, Defense Materials Group, Inc., of Falls Church, Virginia, to construct, test, operate, and finally close down a chemical disposal facility at Tooele Army Depot, Utah. Construction is currently about 7% completed. This is the first of the chemical disposal facilities to be constructed within the United States. Tooele was chosen as the first site because it has the largest share of the nation's stockpile - 42% by agent weight - and therefore will be in operation longer than any other scheduled disposal facility. The design of the facility has been significantly influenced by the lessons-learned from the JACADS facility. It will have two liquid incinerators to destroy agent and a container-handling building to receive the munitions in a specially designed overpack container. The facility is scheduled to commence operations in early 1993.

## REMAINING SITES

The program calls for construction of disposal facilities at each of the remaining seven chemical storage sites within the United States. The next facility to be constructed will be at Anniston Arry Depot, Alabama (7.1% by agent weight), in 1991. The FY 1991 budget requests $64 million for construction of this facility and associated depot support requirements. Because of budgetary constraints, two other facilities, originally scheduled for 1991, have been moved to 1992. These are Pine Bluff Arsenal, Arkansas (12% by agent weight), and Umatilla Depot Activity, Oregon (11.6% by agent weight). Contract awards for these two plants were originally scheduled for late in FY 1991 and now are scheduled for June 1992. Incidently, Pine Bluff Arsenal was the site of our recently completed, highly successful program to destroy the incapacitating agent BZ and the waste material associated with BZ. The method for destruction was incineration, the same as that used by JACADS.

The remaining four plants are scheduled for construction in 1993. They are Aberdeen Proving Ground, Maryland (5% by agent weight); Lexington-Blue Grass Army Depot, Kentucky (1.6% by agent weight); Newport Army Ammunition Plant, Indiana (3.9% by agent weight); and Pueblo Depot Activity, Colorado (9.9% by agent weight). This schedule is different from that included in the March 1988 plan. An explanation of the reason for the change in the schedule is provided in the next section.

## PROGRAM SCHEDULE REVISION

In our last Annual Report on the Chemical Stockpile Disposal Program, submitted to Congress in December 1989, the Army informed the Congress that meeting the April 1997 completion date was improbable. We have now determined that the Congressional mandate cannot be met without circumventing safety and environmental requirements. The $37 million decrement to the FY 1990 procurement program has delayed the scheduled completion of the Tooele Army Depot disposal facility. That facility's operation schedule is also affected by the State of Utah's ruling that, while it reviews the data from each trial burn, disposal operations can only be run at 50% capacity. Finally, the Tooele schedule is also affected by the incorporation of lessons-learned from JACADS. One critical lesson-learned is that it takes 18 months to test the equipment, train the operators and ensure that the plant is safe for agent operations, not 12 months as was expected.

Because of these changes, we have developed a revised schedule that is attached as Table 1. The new schedule shows that destruction of all the chemical munitions should be completed at the end of 1998. Closure of some of the facilities will take place in 1999. In order to use this schedule, relief must be granted by the Congress from Public Law 100-456 which stipulates the April 1997 completion date.

This revised schedule reflects our actual experience to date in terms of the amount of time required for completing environmental documentation and facility systemization, as well as incorporates the stringent RCRA-mandated requirements, based on the permit issued by the State of Utah for operation of the Tooele Army Depot facility. Even though this is a more realistic schedule, I must place a cautionary note here -- the schedule does not account for major delays due to system failures, litigation, or other lessons-learned once JACADS begins actual operation. Should additional schedule revisions be required, we will keep Congress fully informed.

Earlier, I stated that one disposal facility will be constructed in 1991 (Anniston Army Depot), two in 1992 and four in 1993. Many requirements, such as designs and environmental documentation, must still be completed prior to constructing these facilities according to the new schedule. Again, we will keep the Congress informed of our progress.

This revised schedule is compatible with current United States chemical weapons arms control negotiation positions. The Soviet Union and the United States are contemplating signing a bilateral chemical arms agreement this summer. The terms of the agreement being discussed are for both nations to destroy 80% of their chemical stockpile as soon as possible. The multilateral chemical treaty on which the U. S. is also negotiating, however, will probably take a few more years. In either case, the revised schedule is in line with our negotiation positions.

We recognize the importance of schedules and are committed to meeting them. Nonetheless, we are dealing with a complex technology and must expect to experience technical problems. As I stated previously, of paramount concern in this program is safety both for people and the environment. This is a program which will be ready when it is ready.

## SAFETY

It is my commitment, and I know that Colonel Busbee agrees, not to start destroying chemical munitions until we are certain JACADS is ready. When we do start operating, we will do so only on a schedule that is prudent for the tested system and workers. To do otherwise and risk an accident would be foolish and may prove to be more damaging to the overall schedule.

We know that this is a highly visible program and that there is strong interest in ridding this nation of its obsolete chemical stockpile as soon as possible; nonetheless, it is important to remember that safety is the primary objective for this program, not meeting schedules or maintaining minimal costs. We all want to reduce costs and meet international commitments, but not at the risk of jeopardizing the safety of our workers, the public and the environment.

## ENVIRONMENTAL REQUIREMENTS

In order to construct and operate chemical disposal facilities, the Army has developed extensive environmental analyses. First, since this is a major action that has the potential to affect the environment, the disposal program falls under the requirements of the National Environmental Policy Act (NEPA). To comply with NEPA, the Army completed a programmatic environmental impact statement (PEIS) for the overall program. Then, based on that document, site-specific EISs will be developed for each of the chemical disposal sites.

The PEIS was completed in January 1988 and the Army made a Record of Decision that, based on the risk analysis, chemical disposal facilities would be constructed at each of the eight sites. This means that there will be no requirement to transport the chemical munitions off the military installations where they are currently stored for destruction. The Army made a commitment to the Congress that we will conduct additional studies and take a fresh look at the on-site disposal decision before doing the site-specific environmental impact statements. Once this is done, we will then be in a position to either validate or reject the on-site decision. The site-specific EIS will then be developed for the site. This process has already been completed at Tooele Army Depot.

In addition to NEPA, the RCRA requires the completion of additional environmental documents. Since the disposal facilities involve hazardous waste, they must have approved RCRA permits prior to construction. These permits are very comprehensive and normally take 18-24 months to complete. In all cases, the primacy for approval of RCRA permits rests with the states. Also, once the facilities are constructed, extensive trial burns are required for each of the furnaces and for each type of chemical agent. The emissions from these trial burns must meet state and Federal standards in order for the plant to receive an operating permit.

The Toxic Substance Control Act (TSCA) also plays a role in the chemical disposal program. One munition, the M55 rocket, has small quantities of PCB embedded in its fiberglass shipping and firing tube. In order to meet the requirements of TSCA, significant changes to the deactivation furnace system were required. The Environmental Protection Agency (EPA) gave permission for JACADS to start operations based on results from two separate trial burns. Another trial burn will be conducted later.

Finally, the stack emissions for the eight continental United States

(CONUS) facilities must meet the requirements of the Clean Air Act (CAA), including permitting. Since the disposal plants do not discharge contaminated water, compliance with the Clean Water Act is not a problem.

To summarize, the environmental requirements for the Chemical Stockpile Disposal Program are quite extensive and time consuming. Several years of environmental work (2 to 3 years) must be completed prior to construction of a chemical disposal facility.

## EMERGENCY PREPAREDNESS

Emergency preparedness is also an important component of the Chemical Stockpile Disposal Program. When the Record of Decision was made for the programmatic EIS, a significant reason for choosing on-site disposal was the ability to better prepare for an emergency caused by a chemical accident at a fixed site rather than along a transportation corridor.

To mitigate any effects of chemical accidents at the eight chemical storage sites, substantial work is required to enhance the emergency response capabilities of the communities. The Army has signed a Memorandum of Understanding with the Federal Emergency Management Agency (FEMA) to help the communities upgrade their capabilities.

The role of the two agencies is to provide information, assistance, guidance and funding for the states to complete the task. Emergency preparedness is the responsibility of the states, not FEMA or the Army. The states will make the final decisions on how to upgrade their capabilities and what equipment is needed.

The Army and FEMA co-chair an Emergency Preparedness Steering Committee, which is responsible for oversight and review of the complete program. Its functional arms, six subcommittees, include representation from the Army, FEMA, Environmental Protection Agency, Department of Health and Human Services and the affected states and are responsible for the following:

- Planning Subcommittee - Responsible for developing documentation for guiding the actions of all the appropriate agencies. These documents include the Emergency Preparedness Management Plan, Planning Guidance and the Standards and Criteria Manual for equipment. This subcommittee also generates policy recommendations for the Steering Committee.
- Exercise Subcommittee - Responsible for formulating exercise plans, scenarios, and schedules for the states, communities and Army installations. Oversees the exercise program.
- Training Subcommittee - Establishes the training guidelines, then helps provide the necessary training to all emergency responders for the states. Incorporates medical, fire, security, and decontamination functions. Works closely with the Exercise Subcommittee.
- Public Affairs Subcommittee - Develops the plan for educating the populace on actions to take prior to, during and after a chemical emergency. Promotes confidence in emergency response capabilities of the Army and the states. Assists the states' public relations programs. Formulates guidelines for the Joint Information Center that would be used during emergencies. This is the single center that is the source of information to the public and the media.
- Computer Applications Subcommittee - Develops the requirements of the automation system used at Army and state emergency operation centers. Identifies the hardware and software necessary to operate the system. Integrates on-site and off-site components so that both systems are compatible. As a minimum, alert, warning, and command and control capabilities must be incorporated in the automated system. Determines which dispersion model to use for predicting movement of agent.
- Re-entry and Recovery Subcommittee - Helps establish the criteria for determining when buildings, soil, plants, water, etc., are considered safe to use in the unlikely event that they become contaminated with chemical agents.

To date, $63.8 million has been appropriated by Congress to support emergency preparedness. Our FY 1991 budget includes a request for $25.3 million to support the emergency response program. Funds for the emergency preparedness program are provided to the states through FEMA's Comprehensive Cooperative Agreement. The states negotiate their requirements with FEMA and once the agreement is completed, funds are transferred to the states to do the necessary planning, training, and equipment procurement. FEMA and the Army provide contractor assistance to the states and closely monitor their activities to ensure that funds are used appropriately.

As the states continue to plan and refine their roles in emergency preparedness, we anticipate that their resource requirements will grow. After the majority of the equipment is procured (sirens, tone alert radios, computer systems, fire protection, chemical protective equipment, etc.), the emergency response funds will be used for training and exercises. Each site will be conducting periodic full-scale exercises involving the Army installation, the local communities and the state.

In addition, periodic chemical stockpile emergency preparedness program conferences are held to discuss all of the ongoing actions and to share concerns from the states. The first conference was held at Park City, Utah, in November 1989. The second is scheduled for May in Bend, Oregon.

## FINANCIAL SUMMARY AND FY 1991 BUDGET

To date, from FY 1985 through FY 1990, $1.1 billion has been appropriated for the Chemical Stockpile Disposal Program, including $121 million for construction costs in the Military Construction, Army (MCA) account. Attached as Table 2 is a summary of the FY 1991 budget request for the Chemical Agent and Munitions Destruction, Defense account. The fiscal year 1991 request of $354 million provides operations and maintenance, and procurement funding to maintain the program on course to complete chemical disposal operations in 1998. This request includes funds to continue operations at the Chemical Agent Munition Disposal System (CAMDS); complete the Operational Verification Test at the Johnston Atoll Chemical Agent Disposal System (JACADS); begin training at the Central Demilitarization Training Facility (CDTF); and continue to implement the Emergency Preparedness Program.

The FY 1991 request also includes funding to initiate the program and support integration contract to provide technical and managerial support to the Program Manager for Chemical Demilitarization as well as funds to complete the European retrograde project. Further, this request includes funding for the acquisition of equipment for the disposal facilities at Tooele Army Depot, Anniston Army Depot, Pine Bluff Arsenal and the CDTF.

Although not part of the Chenical Agents and Munitions Destruction, Defense account, $76.3 million is being requested in the Army's FY 1991 MCA account for the construction of chemical disposal facilities. Included is a project to construct a disposal facility at Anniston Army Depot, Alabama. The MCA budget also includes funding for projects in support of the Chemical Stockpile Disposal Program at Anniston Army Depot and Tooele Army Depot.

## PROGRAM COSTS

In the March 1988 Chemical Stockpile Disposal Program Implementation Plan, the Army stated that the preliminary life cycle cost estimate for the program would be approximately $3.1 billion. When that figure was estimated, the only known actual costs available upon which to project the program estimate were for the construction of JACADS and the procurement of its equipment. No actual costs were yet available for installing and testing the equipment or operating the facility.

Since 1988, we have gained more refined knowledge of costs based on the program's evolution and our experiences at JACADS. Currently based on the revised schedule that changes the program completion date from April 1997 to December 1998, the Army is in the process of verifying and updating the program costs, using the best available information. Although the Army does not yet have a final coordinated estimate, the life cycle program cost would increase significantly. The major reasons for the increases are:

- extension of schedule. The new schedule extends the program 20 months, with corresponding increases in systemization (equipment testing and prove-out) and operations periods.
- additions to the disposal facilities. The disposal facilities in the United States will have a container handling building (CHB) that is needed to

handle on-site containers which are required to safely move the munitions from the igloos to the disposal plant. In addition, the support for the disposal operations (road upgrades, laundry, utilities, manpower for supporting movement of munitions to facility, etc.) are greater than originally projected in the 1988 estimate.

- better definition of the required on-site container. The actual design for these overpack containers demonstrated that a larger and more costly container was required to meet the safety standards specified in the programmatic environmental impact statement.
- expansion of emergency preparedness program. In cooperation with Federal Emergency Management Agency (FEMA) and the affected states, this program has become better defined, and requirements have correspondingly increased. The greatest reason for the cost increase is the requirement, mutually identified by FEMA and the Army, for full-scale (state and federal) periodic exercises for each of the eight storage sites.
- increased time to develop and complete environmental documentation. The formulation of the RCRA permits require four to six months more time than previously estimated.
- increase in manpower requirements. We have learned that the operations and maintenance contractor will need additional people to run the plant (about 40 more), the Program Manager needs a systems integration contractor to support his many requirements (30 per disposal site), and the Army installations need more people to provide the necessary depot support to the disposal mission (about 60 per site).

Although the Army has more realistic and accurate information today upon which to base cost projections than in 1988, there are still unknown factors. JACADS is not yet operational and more lessons-learned will come from that facility. The environmental requirements are still increasing as states become better educated on the disposal process and require more information and tests. When completed, the Chemical Stockpile Disposal Program will prove to have been costly, but it needs to be emphasized that every action is being taken to ensure accomplishment of this program's mission with maximum safety and environmental protection.

## MANAGEMENT OF CHEMICAL STOCKPILE DISPOSAL PROGRAM

The Army is the Department of Defense Executive Agent for the Chemical Stockpile Disposal Program. Within the Army, the Assistant Secretary of the Army (Installations, Logistics and Environment) has the responsibility for executive-level oversight of the program. In accordance with Public Law 99-145, in May 1986, the Program Manager for Chemical Demilitarization (PMCD) was formed. The PMCD is authorized 13 military and 378 civilians to manage and execute the complete destruction program. This includes, but is not limited to, designing the destruction process; constructing, testing and operating the facilities; developing environmental documents; developing and operating monitoring instruments; ensuring safety, environmental compliance and quality control; and providing resource management and contract administration services.

Most of the work done in the design, construction and operation of the disposal facilities, as well as studies to support environmental safety and engineering requirements, is performed by contractors. Soon, a Program and Integration Systems contractor will be competitively chosen to support the Program Manager in executing the program. The contractor will provide technical, program management and program integration support in the central office at Aberdeen Proving Ground, Maryland, and at all of the field disposal sites.

All of the chemical disposal facilities will be government-owned, contractor-operated plants. The eight follow-on plants will be based on the JACADS design and will use the same destruction process. This means that all the processing equipment must be ident[illegible] except for site-specific modifications. To ensure that all the equipment is similar, we have awarded contracts to Bechtel International and the Stearns-Roger Division of United Engineers and Constructors to provide the major equipment for the facilities.

Also for each facility, a single systems contractor will be competitively chosen for constructing the facility, installing and testing the equipment, operating the facility, and finally dismantling the buildings.

A special aspect of the management of the program is the responsibility for running the plant. Last year the Committee expressed concerned about the apparent confusion in the management structure for the operation of the disposal plants. The Army agreed to review the management scheme and has made some changes. Recently the Army implemented the new scheme. The Program Manager for Chemical Demilitarization will be responsible for operating all of the plants. The Contracting Officer's Representative (COR) will be from his staff. The Program Manager is best suited to perform this management role since his organization will be designing, constructing, and testing the facilities. He has the most experience and technical knowledge concerning the chemical demilitarization program.

Each installation commander will provide the necessary support for security, safety, emergency response and transporting the munitions to the disposal facility. The Program Manager will enter into a Memorandum of Agreement with all of the installation commanders to formalize their responsibilities. Responsibilities during emergency situations will be clearly specified.

## PROGRAM OVERSIGHT

The international community, other federal agencies, the Congress, the states and the public all have an interest in the Chemical Stockpile Disposal Program.

The National Academy of Sciences' National Research Council acts as an independent overseer of the program and has provided valuable advice to us. The committee recently spent a few days on Johnston Island reviewing our JACADS facility. Although we have yet to receive their report, overall they seemed pleased with the facility.

The Army Audit Agency has several on-going audits involving the program. These audits include technical aspects of the program as well as funding and contracting matters.

The Congress currently has two General Accounting Office teams investigating the program. The first is looking at the complete program and the second is concentrating on JACADS. Their reports have not been published. Also, a House Appropriations Committee (HAC) Surveys and Investigations team is investigating the broad aspects of the program and will report to the HAC. That report will include information concerning the follow-on use of disposal facilities and the cryofracture testing program.

## FACILITIES REUSE

The FY 1990 Defense Appropriations Conference Report directed the Army to investigate and report on the feasibility and desirability of follow-on uses of the chemical disposal facilities after they have completed destroying the chemical stockpile. To ensure objectivity, this study will be accomplished with a contract and will look at all possible follow-on uses, both military and non-military, for these facilities. The study also will address potential cost/design changes which would be required for follow-on use. The report should be available at the end of the year.

However, Public Law 99-145 requires the design and construction of facilities to destroy chemical munitions and then to dismantle those facilities after they have completed their tasks. Unless that law is changed, the Army will comply and dismantle the facilities. The multilateral ban on chemical weapons currently being negotiated also requires that all chemical weapons destruction facilities be destroyed once all stocks are eliminated.

## CRYOFRACTURE

Last year at this time, the Department of Defense had stopped all work on the development of the cryofracture process; however, in accordance with the FY 1990 Defense Authorization and Appropriations Acts, the Department has restarted the development of the cryofracture/incineration process. A letter contract was awarded in January 1990 to General Atomics to develop the test plans and restart the test program. The full contract is being negotiated and should be awarded soon.

The 18-24 month test program will involve work at the General Atomics plant in California, at the Greenfield Test Range in Miramar Naval Station, at the Chemical Agent Munitions Disposal System (CAMDS) in Utah, and possibly at one of the chemical surety laboratories. We hope to provide answers to knowledge gaps in this process and gather data that can be used to compare cryofracture with the disassembly/incineration process.

Separate contracts will be awarded to start the environmental work and for the process design. At this time, there is no intent to construct a cryofracture disposal facility and no military construction funds have been programmed for such a facility. In addition, no facility design work will be undertaken until a decision is made concerning construction of the cryofracture facility. At the end of the comparison efforts referred to above, there will be an assessment made to determine whether a cryofracture facility is needed.

The focus of my testimony will now shift to two programs that are not specifically part of the CSDP but are inextricably linked to it -- chemical retrograde and chemical treaty negotiations.

## CHEMICAL MUNITIONS RETROGRADE

Public Laws 99-145 and 100-456 require the destruction of the complete United States unitary chemical stockpile. Included in the unitary chemical stockpile are approximately 100,000 munitions currently stored within the Federal Republic of Germany (FRG). Only 155mm and 8-inch chemical artillery projectiles containing either GB or VX chemical agent are stored within the FRG. These munitions were introduced into the FRG in 1968 in accordance with procedures and requirements governing the handling of munitions at that time. Since 1968, they have been stored, maintained and monitored at their present location without incident. They are in excellent condition and therefore are safe to move.

To help determine where the chemical munitions should be destroyed, the State and Defense Departments verbally queried the FRG Government whether destruction of those munitions should be done on-site. The Government of the FRG refused to permit destruction of the chemical munitions in the FRG.

During the 1986 Tokyo Economic Summit, former President Reagan and Chancellor Kohl reached an understanding that the chemical munitions would be removed from Germany by the end of 1992. Subsequently, at Chancellor Kohl's urging, President Bush encouraged the Department to accelerate the timetable for this retrograde project. The Army has a major role in this planned movement. A task force was created, plans written, and now equipment is being procured and training is being conducted.

On March 8, 1990, most of the plans for the movement within the FRG were released in a press conference that was held at Pirmasens, Germany. The palletized chemical munitions will be taken from storage and placed into steel containers. These containers will then be placed into ammunition containers called MILVANs. Both containers meet the International Maritime Dangerous Goods (IMDG) code for transporting this type of hazardous cargo.

Once the MILVANs are loaded, they will be trucked to Miesau Army Depot by Army vehicles. Actual routes and security plans are still being coordinated with the FRG. At Miesau, the MILVANs will be loaded onto German railcars. The trains will be controlled by Germans, but the chemical munitions will remain under the custody of U. S. Army personnel. Security, medical assistance and emergency response for the complete movement within the country will be provided by the FRG Government. Extensive planning has gone into ensuring full protection of the public and the environment throughout the move of the munitions in Germany.

The trains will transport the MILVANs to the port of Nordenham, located in the northern part of the country. There, the MILVANs will be transloaded into the holds of two U. S. Military Sealift Command vessels. Once the ships are loaded and move into international waters, the rest of the movement will be under complete United States control.

The preferred destination for the chemical munitions is Johnston Island. Because of past reactions to bringing overseas chemical stocks back to the continental United States (CONUS) and the additional risks involved in using a CONUS destruction site, the Johnston Island facility is considered the reasonable place to destroy these stocks. The final decision, however, cannot be made until the Global Commons Environmental Assessment is completed, pursuant to Executive Order 12114. This classified document will assess the environmental consequences of transporting the chemical munitions on different ocean routes. It will explain that removal of the munitions by aircraft is not feasible. Once the document is completed, the Joint Chiefs of Staff (JCS) will make the route decision.

A separate supplemental environmental impact statement (EIS) has been drafted for assessing the environmental consequences of receiving, storing, and destroying the chemical munitions from FRG on Johnston Island. A public meeting was held in Honolulu on this document on March 20, 1990. Public comments were generally negative toward bringing the chemical munitions into the Pacific Basin and to Johnston Island. The Sierra Club and Greenpeace made substantial comments. Answers to all the comments will be incorporated into the final Supplemental EIS. This document will also be completed and a decision made prior to the start of the movement phase of the retrograde project.

Additionally, Public Law 101-165, the 1990 Defense Appropriations Act, precludes the expenditure of more than $10 million on the retrograde project until the Secretary of Defense certifies that JACADS has started destroying chemical agent and there is adequate storage space on Johnston Island for the receipt of the FRG stocks.

Plans still call for the retrograde project to be initiated this year. If the important milestones of completing the environmental documents and operating JACADS are not met or safety is jeopardized, the project will be delayed.

## CHEMICAL TREATY NEGOTIATIONS

The Chemical Stockpile Disposal Program (CSDP) contributes to the reduction of chemical weapons worldwide. As you know, President Bush is strongly committed to chemical disarmament and has expressed continued personal interest in the progress of this program. While a comprehensive multinational chemical treaty is still being negotiated in Geneva, the United States and the Soviet Union have been actively negotiating and may sign a bilateral agreement as early as this summer to destroy up to 80% of our respective chemical stockpiles.

Although the CSDP was undertaken as a United States unilateral initiative in support of chemical disarmament, clearly the program is of major interest to the United States and Soviet negotiators. In this regard, the Army has been working very closely within the Department of Defense, as well as with the Arms Control and Disarmament Agency, to ensure that all treaty requirements are, in fact, executable within the time frames specified. We also are involved in assisting the U. S. negotiators in verification processes for the destruction of these weapons.

Given the U. S. lead in chemical disposal technology, the Soviet Union has expressed interest in our process for destroying chemical munitions. Representatives from the Office of the Program Manager for Chemical Demilitarization were recently included in the discussions with a Soviet delegation in Geneva to discuss our disposal process and to learn about their disposal process.

The U. S. has also extended an invitation for Soviet technicians to visit Johnston Island later this year to see first-hand the U. S. disposal process used in the Johnston Atoll Chemical Agent Disposal System (JACADS). Exchange of data concerning our respective disposal processes is already occurring.

A separate series of visits by United States and Soviet negotiators is also being planned to chemical storage sites within the two countries. The purpose of these visits is to develop procedures to verify the data being exchanged on chemical stockpiles. The first of these visits within the United States will be to Tooele Army Depot, Utah, in early June 1990.

## SUMMARY

The Army takes its mission of destroying the nation's chemical munitions very seriously. The Chemical Stockpile Disposal Program will continue to evolve as more experience is gained and more facilities are built. Although schedules are useful management tools, the Army will only operate disposal facilities when the facilities are ready and we have completed all the necessary mechanical, technical and safety checks. Safety for our workers, the public and the environment is the primary goal for the program.

The Congress has understood the complexity of this important task from the onset of this program and the Army appreciates the funding and legislative support it has received.

## TABLE 1
## REVISED CHEMICAL DISPOSAL SCHEDULE

| Location | Start Phase I Review | Start Facility Constr | Start Opns | End Opns |
|---|---|---|---|---|
| JACADS | N/A | 1986 | May 90 | Jul 94 |
| Tooele Army Depot | Aug 88 | Oct 89 | Oct 93 | Dec 98 |
| Training Facility | N/A | Jun 89 | Nov 90 | Sep 96 |
| Anniston Depot | Dec 88 | Sep 91 | Jun 95 | Jul 98 |
| Umatilla Depot | Feb 89 | Jun 92 | Mar 96 | Oct 98 |
| Pine Bluff Arsenal | Apr 89 | Jun 92 | Mar 96 | Nov 98 |
| Pueblo Depot | Apr 90 | Jun 93 | Mar 97 | Nov 98 |
| Newport Ammo Plant | Oct 90 | Jun 93 | Sep 96 | Aug 97 |
| Aberdeen Prov Grnd | Jun 90 | Jun 93 | Sep 96 | Sep 97 |
| Lex-Blue Grass | Jan 91 | Jun 93 | Mar 97 | Aug 98 |

Note: This schedule does not take into account delays due to major failures or litigation and is dependent on funding support

Note: Phase I is the review of the programmatic on-site decision for the individual sites after gathering site-specific data. Once the Phase I reports are completed and certified, the site-specific environmental impact statements are developed.

### TABLE 2
### CHEMICAL DEMILITARIZATION PROGRAM
### TOA ($ MILLION)

CHEMICAL AGENTS AND MUNITIONS DESTRUCTION, DEFENSE

| | FY 90 | FY 91 |
|---|---|---|
| Budget Activity 1: Research and Development | | |
| Monitor Development | 1.0 | |
| Cryofracture Development | 6.1 | |
| Toxicology Research | 0.8 | |
| Total Research and Development | 7.9 | |
| Budget Activity 2: Procurement | | |
| Emergency Response | 37.9 | 13.9 |
| Equip Acquisition-CONUS | 34.3 | 197.7 |
| Total Procurement | 72.2 | 211.6 |
| Budget Activity 3: Operations and Maintenance | | |
| Chem Agent Munitions Disp Syst | 22.0 | 22.5 |
| Johnston Atoll Chemical Agent Disposal System (JACADS) | 52.7 | 55.6 |
| BZ Disposal | 18.2 | |
| Program Oversight | 0.8 | 0.8 |
| Stockpile Disposal | 28.1 | 28.6 |
| Program Management | 9.6 | 10.2 |
| Technical Support | 1.0 | 0.8 |
| Emergency Preparedness | 14.2 | 11.4 |
| European Retrograde | | 2.1 |
| Program Integration | 0.2 | 10.8 |
| Total Operations and Maintenance | 146.8 | 142.8 |
| Budget Activity 4: European Retrograde | | |
| Steel Containers | 1.6 | |
| Other Equipment | 0.2 | |
| Site Upgrades and Restoration | 0.1 | |
| MILVAN Modifications | 0.3 | 0.1 |
| Depot Support | 1.0 | |
| Program Management | 3.1 | |
| Container Shipment | 0.4 | 1.0 |
| Ship Modification | 1.6 | |
| Technical Escort | 0.8 | 0.2 |
| Island Support | 0.1 | 0.8 |
| Port Handling | 0.7 | |
| Security Escort | 1.5 | |
| Transportation | 14.9 | |
| ACAMS/DAAMS Support | 1.0 | |
| Total European Retrograde | 27.3 | *2.1 |
| TOTAL CHEMICAL AGENTS AND MUNITIONS DESTRUCTION, DEFENSE | 254.2 | 354.4 |

*Memo entry -$2.1 included in O&M budget activity

MILITARY CONSTRUCTION, ARMY

| | FY 90 | FY 91 |
|---|---|---|
| Tooele Chemical Disposal Facility, Utah | | 11.8 |
| Anniston Army Depot, Alabama | | 64.5 |
| Total Military Construction, Army | | 76.3 |

## SUMMARY STATEMENT OF DR. RICHARDSON

Dr. RICHARDSON. We are happy to be here to address your interest in the program, Mr. Chairman.

As you know, there have been major changes in the world in the last year or so, but chemical warfare capability is a problem more than ever before. We have about ten countries that have a biological warfare capability. Coupled with the spread of missile technology, high technology threats, the total threat is getting more sophisticated and more hazardous to our troops. Our approach continues to be a combined approach of defense, deterrence, and negotiations of an effective ban.

In the past year, some noteworthy things have been achieved. In the defensive area, after a rigorous testing and source selection process, we have let a contract for a NBC reconnaissance system which will enhance our people's ability to avoid chemical contamination. On the binary 155 round, the manufacturing line for the BIGEYE bomb is set up and is truly an impressive activity. In the area of R&D on how to do chemical treaties, we have initiated a program in that area and we have done other activities to enhance the safety of the program.

For fiscal year 1991, 45 percent of the budget in the chemical area is for defensive measures. Thirty-seven percent is on destruction of the unitary stockpile, 15 percent for retaliatory or deterrent capability, and the new area of treaty R&D gets a little less than 2 percent. We will continue upgrading our defensive posture, continue production of the 155, and go into initial production of the BIGEYE bomb. We will continue research and development on the Multiple Launch Rocket System warhead, continue and slightly increase the research and development on treaty implementation from a level of 15 to 22 million dollars.

I have with me, in addition to the personnel Mrs. Livingstone has mentioned, several people to help address questions in that area. Brigadier General Jerome Jones of the Joint Chiefs of Staff; Bill Dee of the Office of the Program Manager for Binary Munitions; Captain Larry Pfitzenmaier, Program Manager for BIGEYE; and Major General Louis Del Rosso of Army DCSOPS to aid in responding to your questions.

With that, Mr. Chairman, I will close my remarks and we are at your disposal.

Mr. MURTHA. Thank you.

[The statement of Dr. Richardson follows:]

RECORD VERSION

STATEMENT BY

DR. B. RICHARDSON

DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE
(CHEMICAL MATTERS)

BEFORE

SUBCOMMITTEE ON DEFENSE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

APRIL 24, 1990

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE APPROPRIATIONS
COMMITTEE

**MR. CHAIRMAN, MEMBERS OF THE COMMITTEE:**

WE WELCOME THIS OPPORTUNITY TO DISCUSS THE DEPARTMENT OF DEFENSE CHEMICAL PROGRAMS.

## THE CHANGING WORLD ENVIRONMENT

SINCE WE LAST ADDRESSED THIS COMMITTEE, SIGNIFICANT CHANGES HAVE OCCURRED IN THE SOVIET UNION AND EASTERN EUROPE. HOWEVER, OUR NATIONAL SECURITY STRATEGY CONTINUES TO EMPHASIZE GLOBAL INVOLVEMENT OVER ISOLATION. WITHIN THE CHEMICAL MODERNIZATION PROGRAM WE MUST CONTINUE TO SUPPORT THAT STRATEGY AND THE STILL-VALID DOCTRINES OF DETERRENCE, FLEXIBLE RESPONSE, FORWARD DEFENSE, SECURITY ALLIANCES, AND PRUDENT ARMS CONTROL NEGOTIATIONS AND REDUCTIONS. WE SEEK TO DETER AGGRESSION AGAINST OUR GLOBAL INTERESTS BY MAINTAINING WITH OUR ALLIES A CREDIBLE ARRAY OF MILITARY RESPONSES AIMED AT MAKING THE COST OF SUCH AGGRESSION EXCEED ANY POSSIBLE GAINS. OUR PROGRAM SUPPORTS THIS DEFENSIVE STRATEGY.

### EVOLVING THREATS

YOUR SUPPORT OF OUR PRODUCTION OF A LIMITED BINARY CHEMICAL RETALIATORY CAPABILITY CAN BE DIRECTLY CREDITED WITH THE SOVIETS ENTERING SERIOUS NEGOTIATIONS WHICH LED TO THE SIGNING OF THE WYOMING MEMORANDUM OF UNDERSTANDING LAST SEPTEMBER. ALTHOUGH THE

SOVIET UNION CONTINUES TO HAVE THE WORLD'S GREATEST CAPABILITY FOR CONDUCTING CHEMICAL AND BIOLOGICAL WARFARE, THERE IS HOPE FOR REDUCING THE CHEMICAL THREAT IN EUROPE.

UNFORTUNATELY, CHEMICAL WARFARE IS NOT JUST AN EAST-WEST ISSUE. WE CONTINUE TO FACE SERIOUS GLOBAL THREATS. MORE NATIONS POSSESS CHEMICAL AND BIOLOGICAL WEAPONS TODAY THAN AT ANY OTHER TIME IN HISTORY. CALLED THE "POOR MAN'S ATOMIC BOMB" BY ONE HEAD OF STATE, CHEMICALS ARE CHEAP AND DEADLY. CHEMICAL ARMS CONTROL MUST BE GLOBAL AND COMPREHENSIVE. ALL CHEMICAL WARFARE (CW)-CAPABLE STATES MUST OPENLY PARTICIPATE IF WE ARE TO HAVE TRUE SECURITY. A DISTURBING NUMBER OF THIRD WORLD COUNTRIES HAVE OR ARE ACQUIRING SOPHISTICATED ARSENALS OF LONG-RANGE MISSILES AND CHEMICAL AND BIOLOGICAL WEAPONS. LIBYA AND IRAQ ARE ONLY THE MOST VISIBLE EXAMPLES OF THE MORE THAN 20 CHEMICAL CAPABLE STATES. THE 1972 BIOLOGICAL WEAPONS CONVENTION PROHIBITS POSSESSION OF BIOLOGICAL WEAPONS, BUT WE KNOW OF AT LEAST TEN COUNTRIES WITH BIOLOGICAL WARFARE PROGRAMS. MOST OF THE TEN ARE SIGNATORIES TO THE CONVENTION. CHEMICAL AND BIOLOGICAL WARFARE PROLIFERATION HAS OCCURRED AND CONTINUES.

## NATIONAL POLICY

OUR NATIONAL POLICY IS TO PREVENT THE USE OF CHEMICAL AND BIOLOGICAL WEAPONS AGAINST U.S. FORCES AND THOSE OF OUR ALLIES. OUR MAIN STRATEGY IS TO SEEK A COMPREHENSIVE AND TRULY GLOBAL

CHEMICAL WEAPONS TREATY WHICH BANS THE DEVELOPMENT, MANUFACTURE AND STOCKPILING OF CHEMICAL WEAPONS AND ALLOWS VERIFICATION OF THE DESTRUCTION OF EXISTING STOCKPILES. HOWEVER, UNTIL FRUITION OF THAT EFFORT, WE MUST HAVE DETERRENCE. THAT DETERRENCE IS BASED ON AN ABILITY TO RESPOND IN KIND, SO THAT NO POTENTIAL ADVERSARY MIGHT ENVISION AN ADVANTAGE TO USING CHEMICALS ON U.S. FORCES. IT IS ALSO OUR POLICY, THAT WE WILL NOT USE CHEMICAL WEAPONS FIRST IN ANY CONFLICT, AND TO NEVER USE OF EVEN POSSESS BIOLOGICAL WEAPONS.

## PROGRAM OBJECTIVES

THE 1991 BUDGET REQUEST SUPPORTS OUR CURRENT STRATEGY AND NATIONAL POLICY WITH RESPECT TO CHEMICAL MODERNIZATION, AND BUILDS ON PROGRESS FROM THE PROGRAM APPROVED LAST YEAR. WE CONTINUE TO AIM TOWARDS A CREDIBLE CHEMICAL RETALIATORY CAPABILITY AND IMPROVED DEFENSIVE MEASURES. BOTH ARE REQUIRED TO EFFECTIVELY DETER THE USE OF CHEMICAL WEAPONS AGAINST OUR ARMED FORCES. AN EFFECTIVE CHEMICAL WEAPONS RETALIATORY CAPABILITY PROVIDES THE FIRST CRITICAL PILLAR OF DETERRENCE. TO BE CREDIBLE, IT MUST DENY THE ENEMY ANY ADVANTAGE GAINED BY INITIATING CHEMICAL WARFARE ANYWHERE ON THE BATTLEFIELD.

CONCURRENTLY WITH THESE IMPROVEMENTS IN OUR MILITARY CAPABILITY TO DETER CHEMICAL WARFARE, WE ARE PROCEEDING TOWARDS DESTRUCTION OF THE AGING UNITARY STOCKPILE OF CHEMICAL AGENTS AND MUNITIONS.

PRESIDENT BUSH CONTINUES TO STRONGLY SUPPORT A COMPREHENSIVE AND TRULY GLOBAL CHEMICAL WEAPONS BAN NEGOTIATED FROM A POSITION OF STRENGTH. IN PREPARATION FOR SUCH A TREATY, A DOD TREATY VERIFICATION RESEARCH AND DEVELOPMENT PROGRAM IS IN PLACE. A PLAN, INVOLVING A NUMBER OF AGENCIES, WAS SUBMITTED TO CONGRESS THIS PAST JANUARY.

## PROGRAM OVERVIEW

OUR FY91 BUDGET REQUEST FOR THE OVERALL CHEMICAL WARFARE, CHEMICAL AND BIOLOGICAL DEFENSE, CHEMICAL TREATY VERIFICATION RESEARCH AND DEVELOPMENT, AND CHEMICAL DEMILITARIZATION PROGRAMS IS $1.159 BILLION, OF WHICH 15.4 PERCENT IS FOR CHEMICAL WARFARE RETALIATORY PROGRAMS, 45.4 PERCENT IS FOR CHEMICAL AND BIOLOGICAL DEFENSE, 1.9 PERCENT IS FOR CHEMICAL TREATY VERIFICATION RESEARCH AND DEVELOPMENT AND 37.3 PERCENT IS FOR CHEMICAL DEMILITARIZATION AND RETROGRADE PROGRAMS. WE WILL COVER EACH AREA IN MORE DETAIL.

**CHEMICAL RETALIATORY PROGRAM:** OUR CURRENT UNITARY MUNITIONS DO NOT PROVIDE CREDIBLE DETERRENCE TO CHEMICAL WARFARE. THAT SMALL PORTION OF THE OLD STOCKS WHICH CAN STILL BE EMPLOYED HAS ONLY LIMITED MILITARY USEFULNESS. IN ADDITION TO LIMITATIONS SUCH AS LACK OF LONG RANGE PENETRATION AND PERSISTENT CAPABILITIES, UNITARY MUNITIONS ARE DIFFICULT TO TRANSPORT AND USE, FOR EXAMPLE, ON AIRCRAFT CARRIERS.

OUR PROGRAM TO PRODUCE BINARY CHEMICAL WEAPONS ENHANCES DETERRENCE AND MAKES IT CREDIBLE. THIS NEW STOCKPILE WILL BE LESS THAN ONE-FIFTH THE TONNAGE OF OUR UNITARY STOCKPILE. BINARY CW SYSTEMS WILL PROVIDE A SAFE, EFFECTIVE AND FLEXIBLE CW RETALIATION CAPABILITY. WE CONTINUE TO PURSUE THREE MODERN BINARY SYSTEMS: THE 155MM ARTILLERY PROJECTILE, THE XM-135 BINARY CHEMICAL WARHEAD FOR THE MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) AND THE BIGEYE BOMB. THESE SYSTEMS MAKE UP OUR SHORT RANGE, INTERMEDIATE RANGE AND DEEP STRIKE CAPABILITIES, RESPECTIVELY, ALL OF WHICH ARE NECESSARY FOR DETERRENCE. THE 155MM SYSTEM HAS BEEN IN PRODUCTION SINCE 1987. THE BIGEYE BOMB IS SCHEDULED TO FINISH OPERATIONAL TESTING THIS YEAR AND BEGIN PROCUREMENT NEXT YEAR, WHILE THE MLRS BINARY CHEMICAL WARHEAD IS SCHEDULED FOR FIELDING IN THE MID-90'S.

THE BIGEYE IS ESPECIALLY CRITICAL FOR DETERRENCE. IT WILL PROVIDE THE MEANS TO EFFECTIVELY ATTACK DEEP TARGETS WITH PERSISTENT CHEMICAL AGENTS, COUNTERING POTENTIAL ADVERSARY USE OF PERSISTENT AGENTS IN CONJUNCTION WITH CONVENTIONAL ATTACKS AGAINST OUR AIR BASES, LOGISTICS SUPPORT CENTERS AND TROOP CONCENTRATIONS. THE BIGEYE PROVIDES A MEANS WITH WHICH LIGHT EXPEDITIONARY FORCES COULD LAUNCH RETALIATORY CHEMICAL ATTACKS WITH THEIR LARGELY SEA-BASED SUPPORTING FORCES.

**DEFENSIVE PROGRAMS:** CHEMICAL AND BIOLOGICAL DEFENSE FORMS THE SECOND PILLAR OF DETERRENCE. SHOULD DETERRENCE FAIL, WE NEED TO PROTECT AND EFFECTIVELY SUSTAIN OUR COMBAT CAPABILITIES. WE

CONTINUE TO EXPLOIT JOINT AND COOPERATIVE PROCUREMENT PROGRAMS FOR DEFENSIVE EQUIPMENT AS A WAY OF CONTROLLING OUR COSTS. WE ALSO ARE INVESTING IN FUTURE TECHNOLOGY TO PROVIDE EFFECTIVE PROTECTION WITH MINIMAL ADVERSE IMPACT ON OUR WARFIGHTING CAPABILITY. THROUGH THIS INVESTMENT WE SEEK TO REDUCE SIZE, WEIGHT, AND OVERALL LOGISTICAL RESOURCES CURRENTLY REQUIRED TO SURVIVE AND FIGHT ON THE CONTAMINATED BATTLEFIELD.

THE THRUST OF THE DEFENSIVE PROCUREMENT PROGRAM IS TO PROVIDE ADEQUATE STOCKS OF READINESS-RELATED EQUIPMENT (LIKE MASKS, PROTECTIVE CLOTHING, COLLECTIVE PROTECTION FILTERS, CHEMICAL AGENT ALARMS, VACCINES AND ANTIDOTES) IN ORDER TO IMPROVE THE ABILITY OF OUR FORCES TO SUSTAIN EFFECTIVE OPERATIONS IN A CONTAMINATED ENVIRONMENT. EVERY SOLDIER, SAILOR, AIRMAN AND MARINE IN OR BEING DEPLOYED TO A CHEMICAL THREAT AREA HAS THE MINIMUM INDIVIDUAL EQUIPMENT NEEDED TO SURVIVE THE INITIAL CHEMICAL ATTACKS, BUT THIS EQUIPMENT MUST BE UPGRADED TO SUSTAIN COMBAT CAPABILITY.

IN RESEARCH AND DEVELOPMENT, WORK CONTINUES ON MUCH NEEDED NEXT GENERATION DEFENSE SYSTEMS. OUR CURRENT RESEARCH AND DEVELOPMENT PROGRAMS WILL ALLOW US TO DEMONSTRATE AND BEGIN FIELDING IN THE MID-1990S NEW DETECTORS AND ALARMS, DECONTAMINATION SYSTEMS, AND MATERIAL (LIKE THE SOLDIER LIGHTWEIGHT CHEMICAL PROTECTIVE SUIT FOR ARMY LIGHT FORCES AND COLLECTIVE PROTECTION FOR ARMORED SYSTEMS MODERNIZATION). WE WILL ALSO COMPLETE DEVELOPMENT OF AND FIELD NEW VACCINES AND PRETREATMENT DRUGS FOR IMPROVED

PROTECTION, A SKIN DECONTAMINATION KIT, AN IMPROVED PRETREATMENT AND ANTIDOTE FOR NERVE AGENTS, AND ENHANCED MEDICAL DIAGNOSTIC AND TREATMENT CAPABILITIES. OTHER INITIATIVES WILL FOCUS ON COMPLETION OF TESTING AND FIELDING OF THE AIRCREW EYE/RESPIRATORY PROTECTION SYSTEM FOR THE AIR FORCE AND THE NAVY AS WELL AS DEVELOPMENT AND FIELDING OF A FIXED SITE DETECTION AND WARNING SYSTEM.

IN 1991, THE ARMY WILL CONTINUE ITS PROCUREMENT OF SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT SETS. THE ARMY WILL ALSO CONTINUE TO PURCHASE THE CHEMICAL AGENT MONITOR, OR CAM. THE CAM BRINGS A MUCH NEEDED PORTABLE NERVE AND BLISTER AGENT SURVEY DEVICE TO THE FIELD. THE NBC RECONNAISSANCE SYSTEM PROGRAM CONTINUES WITH A RECENT DECISION TO BUY THE GERMAN NBC RECONNAISSANCE VEHICLE WHICH IS BEING DEVELOPED AND PRODUCED BY AN U.S/FRG INDUSTRY TEAM PROGRAM. THIS WILL PROVIDE OUR FORCES WITH THEIR FIRST NEAR REAL-TIME, MOBILE CAPABILITY TO DETECT, IDENTIFY AND REPORT CONTAMINATION ON THE BATTLEFIELD. THE ARMY WILL BUY 8 VEHICLES IN FY 1990 AND 15 IN FY 1991.

REGARDING THE IMPROVED DRINKING TUBE FOR PROTECTIVE MASKS, A CONTRACT WAS AWARDED LAST SEPTEMBER FOR MODIFIED PROTOTYPES. TECHNICAL AND OPERATIONAL TESTING WILL BE COMPLETED BY MAY 90. WE EXPECT TO AWARD A CONTRACT TO PROCURE 200,000 DRINKING TUBES IN THE FIRST QUARTER OF FY91.

THE AIR FORCE PROGRAM GOAL IS TO PROTECT INDIVIDUALLY AND

COLLECTIVELY ALL OF THEIR PERSONNEL IN OR DEPLOYABLE TO CB THREAT AREAS--SOME 400,000 AIRMEN IN ALL. TO DATE, THEY HAVE FIELDED 140,000 NEW GROUND CREW MASKS WITH OVER 77,000 MORE ON CONTRACT FOR DELIVERY THIS YEAR. DELIVERY OF IMPROVED AIRCREW MASKS BEGINS IN 1991 WITH F-16, KC-135 AND C-130 UNITS RECEIVING INITIAL ISSUE. THEY PLAN ON BUYING 30,000 NEW AIRCREW MASKS IN FUTURE YEARS. THE AIR FORCE HAS ALSO BEGUN FIELDING THE SECOND GENERATION GROUND CREW OVERGARMENT AND WILL BEGIN FIELDING ITS SECOND GENERATION AIRCREW OVERGARMENT IN 1993. ALONG WITH THE ARMY AND THE NAVY, THE AIR FORCE WILL ALSO ACQUIRE THE CAM.

AS IN THE PAST, THE AIR FORCE WILL CONTINUE PROCUREMENT OF COLLECTIVE PROTECTION SYSTEMS, SHELTER AREAS WHERE PEOPLE CAN WORK AND REST WITHOUT MASKS AND OVERGARMENTS. WITHOUT THESE, AIR BASES CANNOT SUSTAIN OPERATIONS IN A CHEMICAL ENVIRONMENT. MORE THAN 60 WORK CENTERS HAVE BEEN MODIFIED WITH THIS PROTECTION. ALSO, THEY HAVE INSTALLED 121 SURVIVABLE COLLECTIVE PROTECTION SYSTEMS (SCPS), WITH ANOTHER 43 PLANNED. THE AIR FORCE HAS RECENTLY REVISED THEIR COLLECTIVE PROTECTION PROGRAM, BASED ON THE RAPIDLY CHANGING SITUATION IN EUROPE AS WELL AS FUTURE BASE CLOSINGS AND REALIGNMENTS WHICH WILL RESULT FROM FORCE REDUCTIONS. IN THE FUTURE, PROTECTION ON AIR BASES WILL RELY MORE ON MOBILE-TRANSPORTABLE ROOM OR TENT LINER SYSTEMS AS OPPOSED TO THE MORE EXPENSIVE AND LESS FLEXIBLE SCPS AND PERMANENT WORK CENTER MODIFICATIONS.

THE NAVY CB DEFENSE PROCUREMENT PROGRAM CONTINUES ACROSS-THE-

BOARD IMPROVEMENTS IN READINESS AND SUSTAINABILITY. THE NAVY HAS BECOME THE FIRST SERVICE TO FIELD A STANDOFF NERVE AGENT DETECTION SYSTEM, THE AN/KAS-1 CHEMICAL WARFARE DIRECTIONAL DETECTOR. THE NAVY WILL PURCHASE A SIZABLE NUMBER OF CAMS. THEY ALSO PLAN TO PURCHASE APPROXIMATELY 100 CHEMICAL AGENT POINT DETECTION SYSTEMS EACH YEAR FOR INSTALLATION ABOARD SURFACE SHIPS. THEIR COLLECTIVE PROTECTION SYSTEM (CPS) PROGRAM CONTINUES TO FOCUS ON PROVIDING THIS IMPORTANT CAPABILITY FOR THE FLEET. THE NAVY NOW HAS 3 CPS-EQUIPPED SHIPS IN COMMISSION - LSD'S 44 AND 45 AND LHD-1, AND PLANS TO COMMISSION ANOTHER 3 LSD'S AND ONE DDG PRIOR TO THE END OF FY91. FUTURE PROCUREMENTS OF THESE SHIP CLASSES AND THE AOE-6 CLASS WILL INCLUDE CPS. FOR THEIR SHORE INSTALLATIONS THEY WILL PROCURE A VARIANT OF THE AIR FORCE'S SURVIVABLE COLLECTIVE PROTECTION SYSTEM. ALSO IN CONJUNCTION WITH THE AIR FORCE, THE NAVY IS FIELDING THE MCU-2/P PROTECTIVE MASK.

WE SHOULD NOT CONSIDER REDUCING OUR CHEMICAL DEFENSE CAPABILITY BECAUSE "A CHEMICAL WEAPONS TREATY IS ON THE HORIZON". WE MUST EMPHASIZE THAT OUR FORCES ARE SUBJECT TO WORLDWIDE DEPLOYMENT, AND WE SHOULD NOT AUTOMATICALLY ASSUME THAT EVERY CW-CAPABLE NATION IN THIS WORLD WILL SIGN AND COMPLY WITH A CHEMICAL WEAPONS TREATY. IN ADDITION, THE CURRENT TREATY ROLLING TEXT CALLS FOR A TEN-YEAR IMPLEMENTATION PERIOD DURING WHICH OUR FORCES REMAIN VULNERABLE TO CHEMICAL ATTACK. PRESIDENT BUSH'S POLICY RECOGNIZES THAT WE NEED TO REMAIN CAPABLE OF SURVIVING, FIGHTING AND RETALIATING ON A CHEMICAL BATTLEFIELD UNTIL ALL CW CAPABLE STATES

SIGN A TREATY.

**CHEMICAL TREATY IMPLEMENTATION:** WE REMAIN COMMITTED TO A TRULY GLOBAL AND COMPREHENSIVE BAN OF CHEMICAL WEAPONS. I AGAIN ASK THAT YOU RECOGNIZE THE HISTORICALLY PROVEN EFFECTIVENESS OF NEGOTIATING FROM A POSITION OF STRENGTH AND THE CONTINUING SIGNIFICANCE CHEMICAL WEAPONS WILL PLAY IN OUR WORLD. THE ABSOLUTE NECESSITY OF MAINTAINING AN EFFECTIVE CHEMICAL RETALIATORY CAPABILITY, DURING THESE TURBULENT PERIODS OF TREATY NEGOTIATIONS AND IMPLEMENTATION, CANNOT BE UNDERESTIMATED.

GOOD PROGRESS IS BEING MADE IN OUR RECENTLY ESTABLISHED TREATY VERIFICATION RESEARCH AND DEVELOPMENT PROGRAM. THIS PROGRESS HAS BEEN SLOWER THAN ANTICIPATED, IN PART DUE TO THE COMPLEX ASPECTS OF MULTIAGENCY COORDINATION AS WELL AS UNCERTAINTIES IN THE NATURE OF THE BILATERAL AND MULTILATERAL TREATIES BEING NEGOTIATED. THIS FLUIDITY HAS RESULTED IN SLOW ASSESSMENT OF THE REQUIREMENTS OF A VERIFICATION SYSTEM. FOR EXAMPLE, PLANNING FOR THIS RESEARCH AND DEVELOPMENT WAS INITIATED BEFORE THE BILATERAL NEGOTIATIONS ACHIEVED MUCH IN THE WAY OF SUBSTANCE.

AS PART OF THE RESEARCH AND DEVELOPMENT PLAN, TECHNOLOGIES AVAILABLE NOW OR IN THE NEAR TERM FOR VERIFICATION ARE BEING IDENTIFIED. A KEY STEP IN THIS PROCESS IS TO ESTABLISH THE SPECIFIC ROLE OF EACH CANDIDATE TECHNOLOGY. FOR EXAMPLE, THE USEFULNESS OF DETECTION DEVICES IN MONITORING FOR COMPLIANCE NEEDS

TO BE ADDRESSED PRIOR TO COMMITMENT OF RESEARCH AND DEVELOPMENT RESOURCES. WE ARE DEVELOPING COST ESTIMATES FOR OTHER ASPECTS OF VERIFICATION SUCH AS PROCUREMENT, OPERATIONS, MAINTENANCE AND PERSONNEL.

**CHEMICAL DEMILITARIZATION AND RETROGRADE:** THE DESTRUCTION OF THE CURRENT UNITARY STOCKPILE HAS BEEN AN INTEGRAL PIECE OF OUR CHEMICAL MODERNIZATION PROGRAM. IN THIS EXTREMELY COMPLEX PROGRAM, THE CONGRESS AND THE DEPARTMENT OF DEFENSE SHARE A COMMON GOAL: THE SAFE AND EXPEDITIOUS DESTRUCTION OF THIS LARGE STOCKPILE OF LETHAL TOXIC CHEMICALS. MOST OF IT HAS NO MILITARY UTILITY AND CONTINUED LONG TERM STORAGE SIMPLY PROLONGS THE SUBSTANTIAL COST BURDEN OF PROPER STORAGE, AS WELL AS THE RISK, ALBEIT SMALL, OF AN INCIDENT. THE ARMY, OUR EXECUTIVE AGENT FOR EXECUTION OF THE PROGRAM, IS PROCEEDING ALONG A RECOMMENDED REVISED SCHEDULE WHICH WILL ALLOW US TO MEET A 1998 COMPLETION DATE.

ALSO, REMOVAL OF OUR EXISTING CHEMICAL UNITARY STOCKPILE FROM EUROPE IS PLANNED. WE APPRECIATE YOUR CONCERN ABOUT EFFECTS OF THIS REMOVAL ON OUR DETERRENT CAPABILITY, AS WELL AS CONCERN FOR THE SAFETY AND SECURITY OF PERSONNEL CONDUCTING THESE REMOVAL OPERATIONS. A MODERNIZED BINARY CAPABILITY BASED IN THE UNITED STATES WILL PROVIDE FLEXIBILITY, SAFETY AND ADEQUATE DETERRENCE. IN COMPLIANCE WITH CONGRESSIONAL WISHES, AGENT DESTRUCTION AT THE JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM (JACADS) WILL BE DEMONSTRATED PRIOR TO MOVEMENT OF ANY MUNITIONS FROM GERMANY. THE

FINAL DECISION ON MOVEMENT OF MUNITIONS TO JOHNSON ATOLL CANNOT BE MADE UNTIL THE GLOBAL ENVIRONMENTAL ASSESSMENT IS COMPLETED. OUR POSITION CONTINUES TO BE THAT THESE MUNITIONS WILL BE A RESERVE AND BE AMONG THE LAST DESTROYED.

## CONCLUSION

IN CLOSING, I WANT TO EMPHASIZE THAT THE DEPARTMENT'S 1991 CHEMICAL MODERNIZATION PROGRAM IS A LOGICAL STEP IN CONTINUING THE COURSE WHICH THE CONGRESS HAS ALREADY SET FOR US. WE REMAIN FIRMLY COMMITTED TO INSURING THAT CHEMICAL WEAPONS ARE NEVER USED AGAINST OUR ARMED FORCES. WITH DETERRENCE AS OUR OBJECTIVE, WE SEEK TO BUILD UPON A RELATIVELY SMALL BUT CREDIBLE RETALIATORY CAPABILITY AND ADEQUATE DEFENSIVE CAPABILITY WHILE CONTINUING EFFORTS TOWARD A COMPLETE AND EFFECTIVE ARMS CONTROL AGREEMENT.

WE LOOK FORWARD TO YOUR CONTINUED SUPPORT.

## Removal of Chemical Weapons From Europe

Mr. **Murtha**. A couple of years ago, President Reagan went over to Europe and he agreed with Chancellor Kohl that we would take out our chemical weapons from Germany. The Secretary of State went over later and agreed to speed up the process, saying we would do it this summer.

The plan was to take the weapons to Johnston Island to be stored and then destroyed. This Committee, through its various investigations, found that this process at Johnston Island was behind schedule and not working right. We got all kinds of estimates from the Army about when the procedure was going to be finished. Our estimates have been a lot closer to the facts than anybody else's estimates. Secretary Atwood came to me—this is the level it was—came to this Committee and said, "We would appreciate it if you would allow us to spend some money for removing the weapons from Europe." We had put a prohibition in the legislation saying you couldn't spend any money because you had stopped work on cryofracture. You wanted to make containers to transport these munitions and wanted to redo some ships.

Mr. McDade and I talked about it and discussed it with the committee. We came to an agreement that cryofracture was going to be continued. We also agreed that the containers and ships could get started.

Now I read that the Surveys and Investigative Staff has found that in March of 1990, the Corps of Engineers' Huntsville Division had been directed by the PM to solicit bids for an integrated facility and process design contract for a full-scale cryofracture facility design. This initiative was rescinded at some some level above the PM in March 1990. The PM was directed to cancel any underway effort for a cryofracture facility. That means the word of Secretary Atwood means nothing.

Who rescinded this order?

Mrs. **Livingstone**. That was not an order, but that was rescinded at my direction.

The purpose of that was because it was——

Mr. **Murtha**. Does Secretary Atwood work for you or do you work for Secretary Atwood?

Mrs. **Livingstone**. I was not aware that there had been a direct commitment to you in that regard.

Mr. **Murtha**. If you would look back at the testimony before this Committee over the years, you would see the cryofracture program had the strong interest of this Committee. We weren't notified about this thing being rescinded.

Mrs. **Livingstone**. With the funding provided in fiscal year 1989 and 1990 funds, we are undertaking a great deal of work in the cryofracture area to include process design. We put on hold moving forward with the option to do the follow-on facility design until, if at the conclusion of the R&D test effort, it was determined a facility was needed.

At this point, we are just initiating the research and development portion of this with General Atomics and still don't have the process design underway to which we could even marry a facility design should we wish to do so.

**Mr. Murtha.** It is distressing to me that nobody had the courtesy to call the Committee and tell us what is going on when they know of our great interest in this subject. We are not interested because there is a contractor in our district. We are interested because we think it is the right way to go. We are trying to help you solve the problems.

**Mrs. Livingstone.** Again, with the funding that was provided, we are moving forward with not only the development testing with General Atomics, but also we will be undertaking sampling analysis. We will have an oversight group, MITRE, hired to work with us on the cryofracture program and we are initiating the process design.

The funding provided is not sufficient to cover a facility design, which is currently estimated to be between $4 to $6 million. What we are trying to do is move forward with this in terms of a consistent basis that has logical steps.

The first logical step is to undertake to close the knowledge gaps in the cryofracture process identified by MITRE and we will be doing that under contract with GA. At the conclusion of this process, if it is determined that the cryofracture process is a better technology, more cost efficient technology, we will be coming forward to you with a request for the design and construction costs.

**Mr. Murtha.** I want your staff to work with the Committee and get this straightened out.

We are trying to come up with a program where we will fulfill the obligation of the former President of the United States and the present Secretary of State.

**Mrs. Livingstone.** Yes, sir.

We are delighted to be moving into the cryofracture R&D process. We have had the baseline process in the Army program for a number of years and we still retain our confidence that that technology will work. The problems that the S&I team have been looking at in terms of the facility at Johnston Island pertain less to the technology than to the operational start-up problems that we are experiencing on that complex plant.

Those are there and they have delayed our operational verification testing at Johnston Island.

**Mr. Murtha.** Mr. McDade?

## Chemical Treaties

**Mr. McDade.** Thank you, Mr. Chairman.

Madam Secretary, as we understand it, the United States is currently negotiating two treaties to ban chemical weapons, a bilateral treaty with the Soviet Union, and a multilateral treaty. What is the status of these negotiations and what is a likely timetable for their signing?

**Mrs. Livingstone.** Mr. McDade, I will ask Dr. Richardson to respond to that.

**Dr. Richardson.** We are looking at two different things: a bilateral with the Soviet Union and we are participating in the multilateral negotiations with the 40 nations working at Geneva. On the bilateral, there is a series of steps in that action. The first, of course, was the Wyoming agreement of last fall in which we agreed to exchange data, undertake a series of confidence-building measures.

The second major step with the Soviet Union would be an agreement on destruction. We are generally pointed toward a summit this summer in late May or June at which an agreement might be consummated, an agreement between the Soviet Union and the United States, that we would draw down to ——— agent-tons on each side, to an equal level and with signature of all chemical-capable states to a multilateral treaty, continue down to 2 percent and eventually to zero munitions after that.

Mr. McDade. What is the time frame for the multilateral treaty?

Dr. Richardson. We have no specific target on dates. We don't have a deadline for doing that. The estimate of the soonest we might have a multilateral provided by the Department of State and OSD policy is ——— Mr. McDade.

Mr. McDade. The United States has agreed that when the multilateral treaty enters into force, we will halt production of all chemical weapons. Is it possible and/or likely that this would occur before we have a fully modernized inventory of binary chemical weapons? If so, what impact will this have on the number of unitary weapons we keep and the length of time we keep them?

Dr. Richardson. That is, indeed possible.

If you look at ——— agent-tons, the total amount that we have always looked at on binary, if we went through a full buy-out of everything it is less than that.

We have always looked at the binary program as being much smaller than the unitary stockpile, about 20 percent.

Mr. McDade. How many units is that?

Dr. Richardson. The unitary stockpile is ——— so it is in the range of ——— tons at a 20 percent level if you did the whole thing.

If you look at keeping that level out for a period of eight years, on where we are on binary, you are definitely looking at keeping a part of the unitary stock in a set-aside during that period.

Mr. McDade. How much of it? Do we know?

Dr. Richardson. The ten percent set-aside that we will look at is about ———.

Mr. McDade. If some unitary weapons are retained longer than now anticipated, is it possible that we could be shutting down some of the chemical disposal facilities only to start them up at a later time?

Mrs. Livingstone. Mr. McDade, if we kept along the current schedule, that would be a potential.

The overall Chemical Demilitarization program is scheduled for completion in December 1998. However, public law provides for retention of ten percent of the unitary stockpile under certain conditions, one of which is whether or not there has been some delay in acquiring a significant or adequate amount of binary production.

With respect to that, a great portion of our best munitions are located at four sites within the disposal system: at Johnston Island, including the retrograde munitions coming out of Germany; at Anniston; and at Tooele and Umatilla.

The bad actors are the M-55 rockets. We must proceed expeditiously with the demilitarization program through the conclusion of destruction of the M-55 rockets. On Johnston Island, that is currently scheduled to be completed in early 1992. At that point, we will look at the potential of going from three shifts operating at the Johnston Island plant to one shift in order to elongate that schedule, if necessary, to keep it open to eventually demilitarize the remaining ten percent of the stockpile, or portion thereof.

We will have to assess that at that time. We will do an analysis of slowing down the operations of the potentially affected facilities versus what the costs and benefits would be of layaway and then reactivating them, if necessary, at a later date.

Mr. McDade. You are on to what the Committee is interested in; that we do it in an efficient way, that there not be a start/stop procedure. You are indicating that you are looking at all those issues and you think you have them it hand?

Dr. Richardson. Yes, sir. We need to make sure we monitor the situation very closely. Our current plan would take us through the destruction of the M-55 rockets. Those are the bad actors in the system and we want to dispose of those as quickly as possible. At the conclusion of that, we would look at different shift operations or operating procedures to take care of the remaining ten percent required.

Mr. McDade. For the record, how much of our "best ten percent" is located at each of the current disposal sites?

[Clerk's note.—Classified insert removed.]

## Need for Binary Chemical Weapons

Mr. McDade. The United States has underway three programs to produce binary chemical weapons: a chemical warhead for the MLRS, the BIGEYE chemical bomb, and the GB-2 chemical artillery projectile. Secretary Cheney recently certified to Congress that "an adequate United States binary chemical munitions stockpile will exist before any withdrawal of the existing stockpile from its present location in Europe is carried out." Since the United States intends to remove its chemical stockpile from Europe this summer, it would appear that the Secretary's certification means that our current binary stockpile is adequate.

Why, then, would we be procuring additional weapons?

Dr. Richardson. Sir, I will take that one and I will ask General Jones of the Joint Chiefs of Staff to help me with it. The basic answer is that we looked at two different things; one, adequacy to permit the retrograde of munitions as being distinct from adequacy for deterrence.

General Jones. That is correct.

It was to the adequacy to withdraw chemical weapons from Germany. The certification the Secretary made was to the adequacy of withdrawing the chemical weapons from Europe. It did not address the overall global deterrence required for chemical weapons. It spoke only to the retrograde process.

Mr. McDade. It seems to the Committee you are splitting a few hairs here because the requirement that we laid on the Department was that the Secretary submit to the appropriate committees in the House and Senate a certification that an adequate United States binary chemical munitions stockpile will exist before any withdrawal of the existing stockpile from its present location in Europe is carried out.

That is what he did. He certified that there was enough there. Are we talking about enough to keep somebody happy warehousing it? Aren't we talking about deterrent capability?

General JONES. Yes.

Mr. MCDADE. He certified to that.

General JONES. The Joint Chiefs in January certified to the adequacy of our growing inventory of 155-millimeter projectiles, that that would be adequate——

Mr. MCDADE. I am talking about binary now.

General JONES. That our current growing inventory of 155 binary projectiles was adequate for us to approve the early retrograde of chemical weapons from Germany or from Europe.

It was taken in light of a couple of things. We are programmed to continue building the 155 and also in light of the current security environment in Europe now where we see the likelihood of war is diminishing and with the recognition that we have unitary weapons that could be used for deterrence.

Mr. MCDADE. How much have you got in the budget this year?

Dr. RICHARDSON. On two systems, for the 155, we have $74.3 million in the 1991 budget. On the BIGEYE bomb, we have $8.9 million in the Navy budget; $57.8 million in the Air Force budget. The total of those figures would be about $140 million.

Mr. MCDADE. This is probably the most difficult year we are going to face.

Why don't you go back and scrub those numbers again and see if that is where you really think you need to be.

Thank you.

[The information follows:]

The Administration is reviewing plans for continuing binary modernization. Based on discussions between the United States and USSR, changes may occur in our production requests.

Mr. MURTHA. Mr. Hefner.

Mr. HEFNER. No questions, Mr. Chairman.

Mr. MURTHA. Mr. Miller?

## DISPOSAL OF FACILITIES

Mr. MILLER. Thank you, Mr. Chairman.

In last year's report from this Committee, the Committee included language requesting the Army to submit a report on possible alternative uses for the chemical disposal facilities. Can you tell me what the status of that report is now?

Mrs. LIVINGSTONE. Yes, sir.

We are in the process of developing the statement of work for that follow-on use study. It is scheduled for award in June 1990 to MITRE Corporation, which is a not-for-profit scientific organization. We expect the report to be completed in December of 1990. The current scope of the study will include both military and nonmilitary potential follow-on uses to include such things as conventional weapons demilitarization, U.S. Army hazardous waste that currently exists within the Army community, commercial hazardous waste, conventional commercial trash, and old chemical production facilities like the old VX facility that we have at Newport, Indiana.

We will look at possible follow-on uses for the nonstockpile items that we have in the Army system and also the type of obsolete chemical stockpile items we find in excavations frequently on site at some of our Army installations.

Mr. MILLER. Do you think that this report will be available in time to incorporate the design changes that would be needed?

Mrs. LIVINGSTONE. No, sir.

Let's put it this way. Potentially, it could, but the schedule for at least four of the eight or nine facilities, if you include Johnston Island, are scheduled to be underway in October of 1990. This study will be completed in December 1990. Nonetheless, I think it is probably useful at this point for us to await to see what the follow-on uses might be.

That will give us the cost and also the retrofits that would be required to adapt those plants for follow-on uses and see where we are at the conclusion of the study to determine whether we should delay the program to redesign to provide follow-on uses.

I would note that a substantial delay in the program would occur if follow-on design was incorporated at this point. We would have to go back through environmental documentation. There also would be a requirement for a change in law. Currently under law, we are required to dismantle those facilities at the conclusion of the destruction of the lethal stockpile program. There are a number of decisions that would weigh into that decisionmaking. We are finding out the costs, the engineering-type analyses that would be needed to make a reasonable judgment in that regard.

Mr. MILLER. I understand that the draft of the Multilateral Weapons Treaty require that all destructive facilities be destroyed.

Can you tell me why that would be in there?

Dr. RICHARDSON. The draft treaty addresses the notion of production facilities being converted to demilitarization facilities and requires that if that is done, those facilities be monitored and ultimately destroyed. The Soviets have asked for that one to be considered. They apparently, as one of their options, are looking at some use of production facilities to be converted over to demilitarization facilities.

What the other nations seek, if that is the case, you want those facilities to be made inactive as far as any reconversion to production. As far as facilities that were never used for production, things like JACADS and the United States program, that is not being addressed in the multilateral.

Mr. MILLER. I understand that Johnston Island will take the munitions that are in Germany, in Europe now, and that is why it was built at that particular location, the facilities put on Johnston. That would also mean, of course, it would be a little closer. We do have the munitions in Asia, and that should be no problem. ———.

Mrs. LIVINGSTONE. If I can answer the first part of the question first and the second part later. The Johnston Island facility was built not primarily to take the European munitions that were located in Germany, but to take care of the stockpile that was existing on Johnston Island.

There is a large store of chemical munitions that were moved there in 1971 from Okinawa. In terms of the actual route for the movement of the munitons that are located in Germany to Johnston Island, that route selection has not been made yet. We are completing a Global Commons environmental review that looks at the impact on the environment and the safety of the routes and looks at other options, such as air and sea transport. We have an environmentally preferred alternative at this point in terms of a sea route, but actual selection of the route itself has not been made and won't be made until the Global Commons has been issued.

### CURRENT CHEMICAL WEAPON STOCKPILE

Mr. Miller. I understand there is about a half a million of the M-55 rockets that would be destroyed. Have you given the amount of tonnage that we are talking about to be destroyed in all of the plants?

Mrs. Livingstone. We can provide that.

[Clerk's note.—Classified insert removed.]

Mrs. Livingstone. I also have the data available.

What I can provide is for each of the nine disposal sites we have the amount of chemical agent by tonnage in terms of the percentage of the stockpile. We could provide a more detailed response to you for the record or whatever your preference is, sir.

Mr. Miller. That would be fine if you could furnish it.

Mrs. Livingstone. For instance, Johnston Island would have 6.6 percent, including the German munitions, of the overall unitary stockpile by agent tons; 6.6 percent of the total.

Mr. Miller. Did you say tons?

Mrs. Livingstone. The agent tons; that is a percentage. I would have to turn to someone else to give you the specific tons.

Mr. Miller. If you could get the total for me, I would appreciate it.

Thank you.

[Clerk's note.—Classified insert removed.]

Mr. Murtha. Mr. Livingston.

Mr. Livingston. Welcome to the committee.

I might say that the "e" or no "e," you have a good name and I am proud to see my cousins do well.

Mrs. Livingstone. Thank you sir. Maybe we should wait until the conclusion of the hearing to determine whether that is the case.

### Proliferation of Chemical Weapons

Mr. Livingston. Muammar Qadhafi, the other day, made a pointed comment about how, if he had had nuclear weapons back in 1986, he would have dropped a bomb on New York after we shot his planes down. Iraq has already wiped out a portion of their population with chemical weapons. At least 15 nations have ballistic missiles and no one knows how many have chemical weaponry as you, Dr. Richardson, pointed out in your opening statement. Biological weapons, as well, are a grave threat to the safety of the world.

It seems to me that with all of this news, that it would be a good idea to have a credible deterrent. Could you comment on our deterrent capability today and with specificity related to our BIGEYE bomb? Do we need a BIGEYE bomb to maintain a deterrent to chemical warfare?

Dr. **Richardson**. Sir, as you have noted, quite a few countries have the capability.

We have ——— confirmed countries with a chemical warfare capability and ——— other suspects. The frightening thing is that many of these countries have relatively long-range missile capability. The Soviets were quite active in selling the SCUD missile in foreign trade. It has a range of 300 kilometers.

Many of the countries in the Middle East are looking at longer-range missiles. In the case of Iraq, we know they have one missile with a range of ——— kilometers. ———. I find that many people don't appreciate the full difference between persistent and non-persistent. GB is non-persistent and what we have in air-delivered weapons is non-persistent. The means that you can defend against that by wearing a mask. You don't need gloves and boots. You also don't have to decontaminate non-persistent. It is vapor and goes away.

With mustard or agent VX, you have to wear a full ensemble. Both are toxic through the skin. Both have to be decontaminated.

If, for example, they went through a binary stockpile consisting of only 155s, that like other artillery, is used some distance behind the forward edge of the battle area so that you don't risk artillery pieces being taken. The 155 has a range of 20 kilometers, so you are talking an effective range of 14 or 15 kilometers, in that range for the 155. It would frighten me to have our forces armed with a capability to shoot a non-persistent agent, say, 15 kilometers being confronted with very persistent agents at a range of 300 kilometers, 600 kilometers. I think an adversary could perceive a significant advantage in that. The other aspect, of course, of the persistent agent is by putting us into that protective gear, we degrade performance. I have seen performance standards over 20 years—the degradation of performance is ——— percent. That means that many fewer aircraft sorties, hits on targets, that sort of thing, so I worry not that chemical is a nation-threatening thing, but that we bear a risk to our forces who might get embroiled in Middle East conflict.

Mr. **Livingston**. To offset that threat, are you saying we need that deep-strike capability?

Dr. **Richardson**. Yes.

Mr. **Livingston**. Does the BIGEYE bomb give us that capability?

Dr. **Richardson**. We definitely need that capability for deep strike.

Mr. **Livingston**. Some studies have stated that the U.S. does not need chemical weapons to deter the use of chemical weapons against our forces. Those studies propose instead that we should use our superiority in the area of so-called smart weapons to devastate our opponents. What do you think of that?

Dr. **Richardson**. I have discussed that with several people and it seems to me the burden of proof rests with the people who raise that argument.

We have a history of 70 years of deterrence working in this area. There are now areas in which unilateral disarmament has been an effective means of deterrence, but in this area, we have not seen chemical weapons used on our troops since World War I, so the policy of deterrence seems to work.

On smart weapons, the ability to use those would be hampered if we were hit with chemical agents, particularly a persistent agent.

Mr. LIVINGSTON. Not only would it wipe out the airfield but keep them from using the airfield in the future?

Dr. RICHARDSON. That is correct.

Mr. LIVINGSTON. For the record, how much agent is needed, how good is enough, and can the BIGEYE do the job they say it is needed to do?

Dr. RICHARDSON. I will answer that and invite Captain Pfitzenmaier to address anything I might miss.

The BIGEYE is to make VX agent. It is the most persistent nerve agent that exists. It is what is being made in unitary form by several other countries which we need to counter.

The agent persistence varies by the surface it is on as well as weather conditions. For example, in different kinds of paint, acrylic or alkylid paint, it differs. It differs on soils, slate, clay, that sort of thing.

The main function is to set off detectors and force our personnel into protective gear. It is lethal and does cause injury, but you are really leveling the playing field to put them into the same degradation they will force us into so that we can get on to the chemical combat reality.

Mr. LIVINGSTON. If they have to get into their full garb, they cut their effectiveness by 50 percent and might be less likely to launch their own if they know we are going to do the same thing to them?

Dr. RICHARDSON. If they can put us into protective gear and we cannot do it to them, they have cut our forces by 50 percent. To put them into protective gear, you have to have something that sets off their detectors and forces them into protective gear. Ideally, you would get 40 to 50 grams of VX a square meter from a BIGEYE. Technically, a couple of grams will achieve that.

In practice, you don't get a uniform distribution on the battlefield. It will vary with wind and temperature conditions.

### BIGEYE CHEMICAL BOMB

Mr. LIVINGSTON. You were going to comment on capability of the BIGEYE, whether it would do the job the CINCs need it to do. We have had trouble with a contractor in California. Can you update us on that?

Dr. RICHARDSON. I have full confidence it will do the job. I will ask Larry Pfitzenmaier to give you a status report.

Captain PFITZENMAIER. Thank you, Dr. Richardson.

Good afternoon, Mr. Livingston. I am pleased to be back.

I would like to begin by reviewing the status of BIGEYE testing. As you are aware, we are going to begin another phase of testing very soon. The previous phase of testing was OTIIB. We were graded on 14 specific criteria in OTIIB and BIGEYE was judged to be unsatisfactory in only one of those 14 areas, and that was in reliability. That is not a measure of safety. It is simply a measure of the mechanical workings of the bomb, and we achieved a score of 79 percent. In other words, eight out of ten bombs would have worked, two out of ten wouldn't. I have seven other weapons programs in my office and a score of 80 percent, in that phase of testing, OTIIB, I assure you, would have allowed us to enter low-rate initial production.

We have had two Secretaries of Defense review our program and they have approved BIGEYE for low-rate initial production, but we have been asked by the Congress to enter into one more phase of operational testing, OTIIC. This testing will begin on September 4 of this year after we take delivery of the bombs from Marquart.

Delivery of these bombs is later than I had anticipated. I had hoped to have them earlier in the year and to begin testing earlier. But we have had difficulty with Marquart, which is not a complete surprise to those of us who have worked with Marquart weapons programs. We are confident that in late July we will receive a lot of a hundred weapons, delivered concurrently with first article acceptance testing. We will begin testing on September 4. Testing will run through January 1991.

We may need a break in the weather. We will certainly need weather that is no worse than the weather bureau predicted normal weather. Weather is critical. It is winter at Dugway Proving Grounds at that time. We expect to have a test report written 90 days after completion of testing. The testers will try to do that in 60 days. We require two certifications according to the law. One is a certification by DOT&E and by the very nature of the conduct of the testing and the writing of the test report, DOT&E will provide the certification.

The requirement to certify is written into part 1 of the Test and Evaluation Master Plan. I am not as confident of the certification by GAO because I don't understand what process they will be required to follow. I would like to comment that at the beginning of our test planning for OTIIC, we invited GAO to participate in that planning with the notion that joint ownership in this thing was probably a good idea since we are going to both have to agree with what happened. GAO declined to participate in the test planning, stating that they were fully confident we knew how to plan our tests, but they would be very happy to review it after we were through with the plan.

That test plan will be signed within the month of May, and we will send a copy to GAO. GAO was also invited in writing to attend the five test planning working groups and participate with us, and they did not. So we feel we have taken steps to resolve what for me, sir, has been a painful relationship with GAO, and it doesn't have to be that way because I have examples in my office of excellent relationships with GAO, of times when GAO has pointed out inconsistencies in my programs which I have found to be very legitimate because I was too close to the trees, so this is an aberration, not the normal relationship with respect to GAO.

Mr. Livingston. This is a new weapon being developed?

Captain Pfitzenmaier. That is correct.

Mr. Livingston. How many such development projects have you handled?

Captain Pfitzenmaier. Currently, of my seven weapons, four are in development now, sir.

Mr. **Livingston**. So seven different projects that you have handled. And you believe that—if I take something you said out of context that in the stage of development, that an 80 percent reliability is not unusual; is that right?

Captain **Pfitzenmaier**. It is certainly not unusual. I would like to have higher. We are going to try for higher. We have a requirement of 90 percent at the 80 percent confidence level. That is going to be tough, but we are going to try for it.

Mr. **Livingston**. With respect to the GAO, I understand that Secretary Cheney and the Comptroller General of GAO have jointly convened a panel of experts. Their report contained the following conclusions, among others: (a) DOD has failed to provide adequate oversight and management of the program; (b) Development issues are major and unresolved; (c) DOD has failed to formulate measures of weapon effectiveness; and (d) Additional development tests are required but not scheduled.

Give us your response to those findings.

Captain **Pfitzenmaier**. I would like to point out what I feel is an inconsistency in the statement of the question. The panel of four never did prepare a report. That is the basis of the significant problem. We have conducted their study—the agreement was between the DOD, IG and GAO to assemble a panel. In fact, GAO chose the panel and that is not a heartache.

The panel conducted their deliberations within the spaces and in conjunction with the GAO people with whom we find ourselves at odds. The staffing was provided by them. There was never a report written by the panel or signed up to by the panel of four. What happened was a statement was prepared by GAO of their view of the panel's results.

Mr. **Livingston**. That statement would be dated March 30, 1989 by Eleanor Chelimsky?

Captain **Pfitzenmaier**. Yes. We had a short session with the panel, two hours on January 30, 1989, where we had an opportunity to explain our position. Exiting that meeting, we felt we had made some significant points and there was certainly a sense of agreement from a technical standpoint.

We were surprised at the tone and the content of Ms. Chelimsky's report. Following that, we attempted to contact the panel members, sir, to receive a verification of their thoughts on the report. One of the gentlemen died. We were unable to contact two of them. We did get back written comments from one who, although he agreed with a number of points that were in the GAO report, he commented that he felt the bomb was ready for low-rate initial production following OTIIC. So that is a little bit of a mixed bag.

In my view, that panel, the way it was conducted, assembled and reported out, was not a bipartisan Blue Ribbon representation of the whole story.

Mr. **Livingston**. Was this panel qualified to evaluate the project, in your opinion?

Captain **Pfitzenmaier**. I am familiar with the background, sir, of two of the people and I believe they were. I cannot comment on the other two. I don't recall their backgrounds.

If I may, I am not critical of the qualifications or the makeup of the panel. My criticism is——

Mr. **Livingston**. With the summary of the review.

Captain **Pfitzenmaier**. The information which was made available to them and the structuring of the task force.

Mr. **Livingston**. I think to the extent that we can, we ought to introduce the report and ask the Navy to make extensive rebuttal in addition to your comments, Captain.

[The report follows:]

THE UNDER SECRETARY OF DEFENSE
WASHINGTON, DC 20301

ACQUISITION

JAN 24 1990

Ms. Eleanor Chelimsky
Assistant Comptroller General
Program Methodology and Evaluation Division
U.S. General Accounting Office
Washington, DC 20548

Dear Ms. Chelimsky:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) Final Report GAO/PEMD-89-1, "BIGEYE BOMB: Unresolved Developmental Issues," dated July 17, 1989 (GAO Code 973224), OSD Code 7665.

The Department remains confident that Bigeye will perform its assigned missions. It remains the cornerstone of the President's chemical modernization program. The Joint Staff and the unified commanders-in-chief agree the current Bigeye is required to meet their urgent needs. With Office of the Secretary of Defense approval, the Navy and the Air Force requested FY 1991 production funds.

The detailed DoD response to the draft is included as an appendix in the final report. That response sets forth the DoD rationale for the development and production of the Bigeye Bomb. Over the years, the Department provided other similarly detailed, technically valid responses. The DoD chemical weapons experts agree that the major developmental issues have been resolved to the extent possible for a weapon such as Bigeye, which cannot be tested fully in the atmosphere. The Bigeye operational test results equal or better those of similar weapons already approved for Low-Rate Initial Production.

The United States Government will continue its program to improve its chemical deterrent by fielding a mix of air and ground launched binary systems.

Sincerely,

Robert C. McCormack
ROBERT C. McCORMACK
By Direction of the Secretary of Defense

GAO

United States
General Accounting Office
Washington, D.C. 20548

Comptroller General
of the United States

March 31, 1989

The Honorable Richard B. Cheney
The Secretary of Defense

Dear ~~Mr. Secretary~~ Dick:

I would like to offer my congratulations to you on your recent appointment and confirmation as Secretary of Defense. We look forward to working together with you on a wide range of issues.

The purpose of this letter is to transmit to you a summary of the findings of a panel of four experts on issues concerning the Bigeye bomb. I assembled the panel last fall, at the request of June Gibbs Brown, DOD's Inspector General, to try to come to some closure on Bigeye issues over which DOD and GAO have disagreed over a considerable period of time.

The panel met four times between November 1988 and March of this year. At DOD's request, the panel was briefed at length by DOD personnel on DOD's views of the issues in contention.

The enclosed memo summarizes the panel's findings, as provided to me by the panel in their last meeting on March 6, 1989. The panelists concluded that GAO was correct in its evaluation that major developmental issues affecting the Bigeye remain unresolved, and that further tests are therefore required to answer questions that critically affect the bomb's performance.

Again, congratulations on your confirmation. With best regards,

Sincerely yours,

Chuck Bowsher

Charles A. Bowsher
Comptroller General
of the United States

Enclosure

cc: DOD Inspector General

GAO
United States
General Accounting Office

# Memorandum

**Date:** March 30, 1989

**To:** Comptroller General

**From:** Assistant Comptroller General for Program Evaluation and Methodology - Eleanor Chelimsky

**Subject:** Findings of GAO's Review Panel on the Issues Outstanding Between the DOD and GAO Regarding the Test and Evaluation of the Bigeye Bomb

As you know, we met on March 6, 1989, in order for the panel to present its findings to you regarding the Bigeye bomb test program. The members of the review panel were:

- Dr. John Ahearne, Vice President, Resources for the Future, and Chairman, Committee on Nuclear Facilities Safety of the Department of Energy
- Dr. John Gibbons, Director, Office of Technology Assessment, U.S. Congress
- Dr. Joseph Navarro, former DOD Deputy Undersecretary (Test and Evaluation) in the office of Undersecretary of Defense, Research and Engineering.
- Admiral Ernest R. Seymour (ret.), former commander, NAVAIR

All the panelists have reviewed a draft of the present memo, and we have incorporated their comments.

The meeting began by an expression of thanks from both of us to the panelists for the time they had devoted to the Bigeye-related work.

Then I reviewed some history, as follows.

CHRONOLOGY OF THE REVIEW

The panel was brought together at the request of June Gibbs Brown, Inspector General of DOD, who wanted some help in resolving the disagreements between GAO and DOD on the effectiveness of the Bigeye bomb and on the adequacy of its testing. We at GAO had agreed to this request in the spirit of getting some closure between DOD and GAO on what needs to be done about the bomb, given our joint involvement in certifying that production conditions have been met (see Appendix I). The panel met for the first time on November 18, 1988, and was briefed by GAO on issues GAO regarded as major in the developmental and operational testing of the Bigeye bomb. The panel was provided with earlier published GAO reports on the Bigeye, and the draft of a current report on developmental testing issues.

The second meeting took place on January 30, 1989, when DOD personnel headed by Dr. Robert B. Barker, Assistant to the Secretary of Defense for Atomic Energy, Dr. Thomas J. Welch, Deputy Assistant to the Secretary of Defense (Atomic Energy) (Chemical Matters) and Captain Larry Pfitzenmaier, Bigeye program manager, gave a briefing on their view of the unresolved issues. (Appendix II shows the DOD personnel present at this meeting). This briefing was arranged by GAO at the specific request of the DOD Inspector General, June Gibbs Brown.

The third meeting took place February 13, 1989, with the members of the review panel presenting their views on the issues in contention between GAO and DOD.

The fourth meeting of the panel, on March 6, 1989, is the subject of this memo.

REVIEW OF MAJOR FINDINGS BY THE PANEL

I began by reviewing the three major conclusions that had been reached by the panel members at the February 13 meeting. These conclusions were:

1. Major Bigeye issues--both developmental and operational--remain unresolved.
2. There are serious questions about the adequacy of the developmental testing of the bomb, and especially about the measurement of weapon reliability.
3. The effectiveness of the weapon has not been demonstrated; measures of effectiveness have not been developed.

Further discussion of these issues followed.

## COMMENTS BY PANELISTS

One panel member made the following points concerning the Bigeye:

-- that the bomb was of "very ancient design;"

-- that DOD had given a shifting description of what it meant by weapon reliability; and

-- that information in general from DOD had been inadequate with regard to the weapon.

Another panel member stated three areas of major concern: 1) inadequate oversight of the testing program by DOD to date; 2) unresolved developmental issues (for example, the lack of hard evidence for a relationship between VX purity and biotoxicity; the inadequate definition of weapon reliability; the need to address the issues of flashing and pressure buildup); and 3) operational issues, such as the need to formulate measures to evaluate both the immediate and long-term performance of the weapons. The panel member noted that the developmental issues raised by GAO were all legitimate and proper issues to have raised. [GAO had cited a number of developmental issues in its reports: pressure buildup, agent purity (including the relationship between purity and biotoxicity), chances for flashing, calculation of weapon reliability, deposition density and persistency of VX.]

A third panel member noted that he agreed with the comments by the two previous panelists, adding that the weapon seemed to have no real home or advocate within DOD at a high level. This panelist also seconded observations by the two previous panelists about unresolved developmental testing issues, noting that there remains a lot of evidence that the bomb is still a developmental issue. He felt that the problem of depositing agent of sufficient purity/density was likely to come back as a problem if it became necessary to hit a target with densities higher than currently planned, and that a requirement for greater density would inevitably create further operational constraints.

The panelist added that he would like to see some research done on improving the insulation in the weapon, to prevent overheating of internal materials, as a way to address some of these problems.

With regard to weapon reliability, the panelist said that the bomb had outdated parts, and that this would affect reliability. He stated that DOD's focus on a narrow definition of reliability had little to do with actual weapon effectiveness. He said, "there's a lot beyond reliability" when effectiveness is being considered. He also pointed out that it was hard to analyze the weapon's effectiveness without a clear measure of success or failure, and that DOD had failed to formulate such measures.

The fourth panelist concurred with previous panelists' comments that there was no indication that DOD had formulated "the right measure of effectiveness" for the weapon. He said that there had been no effective oversight of the Bigeye testing program, and that the testing should not have been conducted by the office of the Assistant to the Secretary of Defense for Atomic Energy, especially since this office's overwhelming primary mission is nuclear weapons, not chemical ones. A different panelist also commented that chemical weapons "had fallen between the cracks" at DOD, in terms of management.

Another panel member remarked that it was necessary to decide whether there were better agents as alternatives to binary VX, or a better delivery method for binary VX. He pointed out that delivery from a drone or an air-launched cruise missile would be a good alternative to delivery by aircraft.

I noted at this point, in response to the panelists' comments, that many of the recommendations being made were virtually identical to the ones we made in our 1986 report especially on the need to reconsider developmental issues, and the difficulty in using operational tests to resolve them.

## MAJOR CONCLUSIONS OF BIGEYE PANELISTS

In summary, the four review panelists concluded as follows.

1. DOD has failed to provide adequate oversight and management of the Bigeye developmental and operational test program. The requirement for the weapon is not clearly stated. Testing oversight should be removed from the office of Assistant to the Secretary of Defense for Atomic Energy.

2. The developmental issues cited by GAO with regard to Bigeye are major and unresolved. The panelists agreed that DOD has not adequately dealt with concerns about pressure buildup, purity, flashing, and VX deposition density.

3. DOD's plans to conduct more operational tests without resolving unaddressed developmental issues are highly questionable. Time, money, and resources may be wasted on testing a weapon that may ultimately be either re-designed or cancelled. The operational tests cannot resolve the developmental issues.

4. Additional developmental tests are required to resolve pressure, purity, flashing, and density issues. DOD has not offered a credible explanation for why it has not conducted additional tests required to resolve developmental issues, especially pressure and agent purity tests at higher temperatures than those previously conducted.

5. The unresolved developmental issues seriously constrain delivery of the weapon. Alternative methods of delivery should be considered.

6. DOD has failed to formulate measures of weapon effectiveness. DOD must relate developmental findings to operational use of the weapon. Without sound measures of effectiveness, it is difficult, if not impossible, to determine weapon system success or failure.

7. Better definition and analysis are required to calculate weapon reliability. DOD's measure of reliability is much too narrow and therefore of little real utility in evaluating weapon performance.

Attachments

## Legislative Language with Regard to Bigeye Program, National Defense Authorization Act, FY 1989

### SEC. 116. BIGEYE BINARY CHEMICAL BOMB

(a) AUTHORIZED PROCUREMENT FOR TESTING.—(1) Except as provided in paragraph (2), funds appropriated or otherwise made available to the Department of Defense for fiscal years before fiscal year 1989 for procurement under the BIGEYE binary chemical bomb program may be obligated or expended in connection with such program only for procurement of production-configured bombs. Any bombs procured under the preceding sentence may be used only in conducting required follow-on operational testing scheduled to be performed during fiscal years 1989 and 1990.

(2) Any such funds not obligated for the purpose described in paragraph (1) may be used for the purpose of maintaining program continuity for the BIGEYE bomb program.

(3) None of the funds referred to in paragraphs (1) and (2) may be used for low-rate initial production.

(b) CONDITIONS FOR OBLIGATION OF FUNDS FOR PROCUREMENT.—Except as provided in subsection (f), funds appropriated or otherwise made available to the Department of Defense after the date of the enactment of this Act may not be obligated or expended for procurement of the BIGEYE binary chemical bomb, or for any component of such bomb or the assembly of such bomb, until the reports required by subsections (c) and (d) have been submitted in accordance with those subsections and only then if neither of those reports includes a certification that one or more of the production certification conditions has not been met.

Reports

(c) CERTIFICATION BY DIRECTOR, OT&E.—Upon the completion of operational and developmental tests conducted in connection with the BIGEYE binary chemical bomb program, the Director of Operational Test and Evaluation of the Department of Defense shall submit to Congress a report certifying, with respect to each of the production certification conditions, whether or not, in the judgment of the Director, such condition has been met.

Reports

(d) CERTIFICATION BY COMPTROLLER GENERAL.—Upon the submission of the report under subsection (c), the Comptroller General of the United States shall submit to Congress a report certifying, with respect to each of the production certification conditions, whether or not, in the judgment of the Comptroller General, such condition has been met.

(e) PRODUCTION CERTIFICATION CONDITIONS.—For purposes of this section, the term "production certification conditions" means, with respect to the operational and developmental tests of the BIGEYE bomb, each of the following:

(1) That the operational and developmental tests conducted in connection with such program after the date of the enactment of this Act were realistic and adequate.

(2) That the plan and objectives for those tests were clear, well defined, and properly quantifiable.

(3) That the design of those tests supports a valid statistical analysis of data.

(4) That the criteria for a no-test were adequately defined in the plan for those tests.

(5) That the performance of such bomb in those tests met or exceeded the standards established for the tests.

(6) That the BIGEYE bomb program is otherwise ready to proceed into full-scale production.

(f) FISCAL YEAR 1989 AUTHORIZED ACTIVITIES.—Of amounts appropriated or otherwise made available to the Department of Defense for fiscal year 1989, $15,000,000 may be obligated or expended for procurement for the BIGEYE program without regard to the limitations contained elsewhere in this section, but only for the purposes of maintaining program continuity, maintaining the subcontractor base, and procuring piece parts and components. Such funds may not be obligated or expended for low-rate initial production or for final assembly.

APPENDIX II

## List of DOD Personnel Present at January 30, 1989, Briefing to Panel

Assistant to the Secretary of Defense for Atomic Energy
Dr. Robert B. Barker

Deputy Assistant to the Secretary of Defense (Atomic Energy)(Chemical Matters) Dr. Thomas J. Welch

Ms. Lorraine F. Carpenter, Office of DOD Inspector-General

Capt. L. Pfitzenmaier, Bigeye program manager, NAVAIR

Mr. Salvadore Motsuk, Bigeye program office, NAVAIR

Col. Keith A. Kratzert, NAVAIR

Col. W.L. Busbee, HQ, Department of the Army, Chem/NBC Defense

Mr. Joseph J. Vervier, CRDEC

Mr. Thomas I. Himmelheber, CRDEC

Mr. Michael Parker, Army PM Binary Munitions

Col. Victor J. Cohut, OASD (Atomic Energy)

Maj. Michael D. Salmi, OASD (Atomic Energy)

Mr. Livingston. To whatever extent you feel necessary. Just to summarize, I take it you believe that the BIGEYE is ready for production, that the reliability which is the only factor of some seven that seems to be a hindrance can be improved, and that it will give us the effective deterrent that Dr. Richardson indicates that we need?

Captain Pfitzenmaier. I do, sir.

Mr. Livingston. Thank you very much.

## Removal of Chemical Weapons From Europe

Mr. Murtha. What is the status of the removing the chemical weapons from Germany?

Mrs. Livingstone. I would like to have the Director of the Retrograde Task Force speak to that, who is in charge of the oversight for operational planning for the retrograde movement, General Del Rosso.

General Del Rosso. The Army is strongly committed to accomplishing the chemical munitions retrograde in an expeditious manner. Safety and security remain priority factors in all of our planning.

The Secretary of Defense, as we talked about previously, certified as to the adequacy of our binary stockpile for retrograde operations on 1 February, earmarking the $10 million that would be made available for critical needs in planning—not execution money, planning money only.

The United States and the FRG released details of the retrograde via a joint public announcement on 8 March, and the feedback that we got from that——

Mr. Murtha. Maybe you misunderstood my question, General. I am asking if we are going to meet our commitment to get the weapons out by the end of this year?

General Del Rosso. We are now planning, given the JACADS coming on line as programmed, and the environmental impact statement coming on line as programmed, to be out of there by between 15 and 30 September.

Mrs. Livingstone. If I might expand on that, what General Del Rosso has just indicated is correct, but there are a number of caveats to his statement. There are required certifications that were put into Public Law 100-165 that stated that we could not move the German munitions off their storage site prior to certifying that the Johnston Island facility had destroyed live munitions. The law also placed a cap on the $27 million plus appropriated for the retrograde movement.

Those certifications have caused difficulty in terms of having a continuous and a consistent planning basis for the retrograde of the German munitions. We have——

Mr. Murtha. Could we just get to the answer of the question? Are we going to have it out by the end of the year?

Mrs. Livingstone. If we are able to meet the certification requirements for Johnston Island based on the OVT that is scheduled to be by the end of this month in terms of operational verification testing, then the answer is yes.

Mr. **Murtha**. It depends on certification?

Mrs. **Livingstone**. Yes. We are not sure of the beginning date of the operational verification testing.

Mr. **Murtha**. Until recently, most aspects of this program were classified secret. What parts of this program are still classified?

Mrs. **Livingstone**. There are portions that are still classified in the program, sir, and I will allow General Del Rosso to address those areas.

General **Del Rosso**. Right now the JCS plan is classified. However, the——

Mr. **Murtha**. As I understand it, you announced where the weapons were stored, you announced where they are going; and the only thing that they don't know is the schedule and the routes?

General **Del Rosso**. Yes, sir. That was necessary because of the publication of the environmental impact statements.

### OPPOSITION TO REMOVAL OF WEAPONS

Mr. **Murtha**. Greenpeace and the Sierra Club are in opposition to this plan. Have you been negotiating with them? Is there a problem? Can they stop it or you are going on? Are you able to get it worked out?

Mrs. **Livingstone**. Mr. Chairman, we have had extensive discussions with Greenpeace and other environmental groups on this. At the present time they have submitted, I believe, a hundred pages of questions or concerns to us with respect to the environmental process. We are in the process of responding to those.

In addition, they had expressed a specific concern about doing a base-line sampling at Johnston Island, which we have completed, and were very interested in having us undertake a study of the micro layer on the ocean surrounding Johnston Island, and that will be initiated in early May.

Whether or not they will proceed to some type of litigation or other action at this time, we do not know, sir.

Mr. **Murtha**. That is quite possible. The European munitions cannot be moved until a Record of Decision is made on the Supplemental Environmental Impact Statement at Johnston Island.

You think if they go to court, that is going to be a problem?

Mrs. **Livingstone**. Yes, sir, it potentially could be. We believe that our approach to the environmental documentation for the German munitions move is in compliance with applicable law and executive orders, but they could go forward and get a temporary restraining order. We think our case would be good in responding to that, and hope it would not delay moving the German munitions.

Mr. **Miller**. Would you yield?

Mr. **Murtha**. Yes.

### SEA ROUTES FROM GERMANY TO JOHNSTON ISLAND

Mr. **Miller**. When I asked a few minutes ago whether the munitions would be moved ———. I had in mind what happened when the flag went up in the first place concerning moving the munitions here in the United States. There were some governors that indicated no way will you cross the border and come through my state. It was a political football.

But this did happen then, and that is why I am wondering whether you have the plans of moving the munitions that are in Europe to Johnston Island and whether it would be worth the effort to go around the Horn, so to speak?

Mrs. LIVINGSTONE. That would be an operational decision that will probably be made within the Joint Chiefs of Staff. ——— but that decision won't be made until we can provide to the decision makers the Global Commons environmental review that goes into extensive safety risk analysis and also an environmental analysis of the proposed routes.

Mr. MILLER. It would be a good political football in ———?

Mrs. LIVINGSTONE. Yes. It is clear to me that there is a great deal of emotion and sensitivity to the program. There has been a great deal of public concern expressed for the CONUS sites. That is one of the reasons, in terms of your previous questions on follow-on use, that we need to proceed with that in a very deliberate manner.

There were commitments made to the public that those plants would be closed down. We would need to deal with that in a very open and coordinated fashion should there be a decision to have follow-on use for those plants.

Mr. MURTHA. What is the status of the Record of Decision and when will it be issued?

Mrs. LIVINGSTONE. The record of decision currently is scheduled to be issued within the first two weeks of July. A tentative target date is July 9. We are currently analyzing the numerous issues submitted to us and that will be staffed out for review by a number of agencies.

The environmental impact statement will be issued in final, and then a decision issued.

### CERTIFICATIONS

Mr. MURTHA. How many munitions will be destroyed before you make a certification report?

Mrs. LIVINGSTONE. In terms of the number of munitions that we have determined would be required to issue the certification report, we are looking at approximately three options right now in terms of certification. One which we have rejected but would be technically, I guess, in compliance with the law would be to do more than one M–55 rocket and certify. That, however, is not appropriate from the point of view of proving out.

We are looking at a system that would have 800 or more rockets that would be destroyed for certification and that would allow us to do the full system.

I will let Colonel Busbee address the certification criteria in more detail.

Colonel BUSBEE. Good afternoon. I am the Program Manager for Chemical Demilitarization and we have developed two options for the Secretary of Defense's consideration, both of which we think would meet the intent and spirit of the law.

It would do more than destroy one single agent. It would test the system. It would show that the system that destroys the munition shears it up and feeds it into the furnace, is active, as well as a system that can handle bulk chemical munitions would be fired and would be active as well.

It is our judgment now that we could do that series of tests when JACADS begins operational verification testing now targeted for next month in a period of approximately eight to 10 days, and the certification would flow up through OSD to the Congress at that time.

Mr. MURTHA. When do you expect the certification?

Mrs. LIVINGSTONE. Once the operational verification testing begins, and that is currently scheduled for the end of May, we hope to have the certification completed within eight to ten days of the initiation of operational verification testing.

If OVT begins in late May, the certification would probably be issued in the first week or two of June.

Mr. MURTHA. May of this year?

Mrs. LIVINGSTONE. Yes, sir.

## PROGRAM COST

Mr. MURTHA. When will you reach the $10 million threshold for the program?

Mrs. LIVINGSTONE. That $10 million threshold has been met. We have utilized that money in terms of the acquisition of secondary steel containers for the munitions move from Germany, ship modifications, training, things of that nature.

I might add the statement that our ability to move forward with the removal of the munitions from Germany is seriously hampered by that restriction on expenditure of further funds.

We have basically bottomed out on those funds. We cannot modify the second ship that is required for those munitions moves and a lot of that depends on the fact that there has been a delay in operational verification testing at JACADS.

We request some consideration, if possible, to being relieved of those certification requirements to move the weapons before the OVT certification.

The critical factor is whether we have safe storage for those munitions on Johnston Island. We do, and would prefer to move them, if possible, in a continuous one-step operation rather than what is occurring now, which will be in stops and starts, and unfortunately is going to contribute to significant cost growth if we can't proceed along with getting ourselves ready for the munitions move.

Mr. MURTHA. I just talked to Mr. Atwood about the deal we made, and he was not aware of the actions you had taken. It is not likely we will agree to any more money when you don't live up to your original agreement.

Mrs. LIVINGSTONE. I was not aware that there had been discussions pertaining specifically to tying the retrograde program with a facility design.

We are undertaking the process design for the cryofracture program, and will be awarding that contract with an option to do the facility design. The facility design can't begin today anyway. It will be June 1991 until we have 50 percent of the process design under way before we could initiate specific facility design.

We also have a funding shortfall in the program which precludes sufficient funds to actually do the follow-on facility design.

Mr. MURTHA. The 1990 appropriation earmarked $27.6 million for this program. Will that be sufficient to complete the program?

Mrs. LIVINGSTONE. At this time, sir, I would say the answer to that would be no. Until the program is completed, I can't give you an overall cost estimate, but we have experienced cost growth in ship modifications, the secondary steel container area, training, port handling costs, etc.

Mr. MURTHA. Give us an estimate of additional money that would be needed.

[The information follows:]

An unfunded requirement for $4.4 million for the production of Secondary Steel Containers exists in the FY 1990 budget. Also, I estimate that a total of $10.2 million will be required in FY 1991 in order to complete the retrograde of chemical weapons from the FRG.

Mr. MURTHA. When will a decision be made on the route that the ship will take from Germany to Johnston Island and what impact will the various alternatives have on the cost of the program?

Mrs. LIVINGSTONE. As I indicated previously, the route selection can be made shortly upon issuance of the Global Commons document. That document, which is classified Secret, will be ready and should be finalized at the end of this month and following that, General Del Rosso may have a better schedule for when the route selection may occur by the Joint Chiefs of Staff.

General DEL ROSSO. We are looking at the end of this month. We have an unfinanced requirement for 1990 of $4.4 million.

Mr. MURTHA. $4.4 million above the $27 million?

General DEL ROSSO. Correct, sir.

We also have an unfinanced requirement in 1991 monies of $9.0 million.

Mrs. LIVINGSTONE. Again, however, those costs are not finalized costs, just known on the current basis of the program today, and we won't be able to give you the overall program costs until the mission is concluded.

The routes have different costs. Some are much longer than others, so each of the routes does have cost implications.

Mr. MURTHA. Mr. McDade.

## JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM

Mr. McDADE. Thank you, Mr. Chairman.

Last year, the Committee was told that although the schedule of the start of Operational Verification Testing (OVT) at the Johnston Atoll Plant (JACADS) has been slipping, that March of 1990 was it. Now we know it is May. Yet we are continuing to be told that OVT will be complete in August of 1991 and that we will have a final report by January 1992. You don't think that is realistic, do you?

Mrs. LIVINGSTONE. The completion date for the operational verification testing period remains 16 months. That has not changed. The beginning date for OVT has changed.

Mr. McDADE. The new dates will be——

Mrs. LIVINGSTONE. The ones that you just provided, August of 1991.

Mr. McDade. You are sticking with that date even though you have slipped to May?

Colonel Busbee. Yes, sir.

We built into that OVT schedule time to meet all the critieria that we felt were necessary to answer the questions the Congress asked. We built in four campaigns. Each had a ramp-on period in them where we started at a very slow rate because we want to do this process safely.

Our campaign blend for the first set of munitions, the M-55 rockets, was scheduled to begin at one quarter of the full rate. When we complete that campaign, we will switch to another. We have built in some schedule changeover in each of those munitions.

I feel confident, and the plan is flexible, that although we have experienced approximately six weeks delay from the previous report we gave you of the start of OVT. It is still entirely feasible and meets all the requirements of the test directive that we have MITRE Corporation looking over our shoulder, so to speak, and still complete OVT and issue a test report in the summer of 1991, August 1991; yes, sir.

Mr. McDade. Final report, January 1992?

Colonel Busbee. No, sir. It will not be that late. It will be—let me provide that.

Mr. McDade. Give us a ball park figure.

Colonel Busbee. By the end of the year, we will have a final report that will compare all of the technology we have developed at JACADS and that will be occurring in parallel with the ongoing development program that we have restarted with General Atomics.

That was one of my first tasks.

That is our goal, to bring the results from the tests at JACADS after a 16-month trial of those 4 systems that will bring out all the equipment we have there and compare that with the new resumed development program that we have undertaken with General Atomics.

There are four locations involved—the General Atomics facility in LaJolla——

Mr. McDade. Does everybody agree that it is going to be earlier than January 1992 for the final report?

Colonel Busbee. No, sir.

Mr. McDade. I have a schedule that says you are not going to have a final report on OVT until January 1992.

Do we agree it is earlier?

Mrs. Livingstone. No, sir.

My schedule is showing January-February of 1992, issuance of the final report.

Mr. McDade. We have to have one voice at the table. What is the date going to be?

Mrs. Livingstone. January or February 1992 for issuance of the final report on OVT.

Mr. McDade. Colonel, you report to the Secretary?

Colonel Busbee. Yes, sir.

Mr. McDade. Can you get it done by December?

Colonel Busbee. I will attempt to.

Mrs. **Livingstone**. At this point, I think our current schedule is the date you have.

Mr. **McDade**. If you have anything you want to notify us that differs, please tell us.

### THROUGHPUT RATES

Mr. **McDade**. You indicated the purpose of the test is to certify the process, not to meet specified throughput rates. Everybody agrees that the JACADS can operate at some rate and at some cost. But throughput ought to be the final test of efficiency, cost effectiveness, et cetera.

Mrs. **Livingstone**. The throughput rate is a significant portion of the operational verification testing.

My comment was to indicate that the primary purpose of OVT is to demonstrate that the process itself can be done safely in terms of the system—

Mr. **McDade**. You intend to get a handle on costs by using throughput as a major component of the OVT?

Mrs. **Livingstone**. We will be able to determine through OVT the appropriate rates being tested.

Mr. **McDade**. Are there success and failure thresholds involved?

Mrs. **Livingstone**. Yes, sir.

I understand that there will be success or failure thresholds and MITRE will be doing an independent evaluation of OVT.

Colonel **Busbee**. We provided to the committee two documents, the OVT test directive and the implementation plan, and those documents spell out what we have. MITRE, in its independent oversight role, sets criteria, requirements which could be pass or fail requirements, criteria and indicators.

They will look at the totality of the performance of those systems and judge whether the baseline technology can, in fact, safely destroy chemical munitions. As a part of that study, they will verify that our design throughput rates, in fact, can be attained or conversely if we have to go back—

Mr. **McDade**. And there will be an analysis of their cost-effectiveness and efficiency?

Colonel **Busbee**. We will get manpower loading, efficiency, effectiveness rates.

Mr. **McDade**. Why is ramp-up to full-rate not listed as a milestone for test No. 4?

Mrs. **Livingstone**. If it was not, it should have been.

Mr. **McDade**. Information we have is that it isn't.

Mrs. **Livingstone**. That was an oversight.

There definitely is a provision for that for test No. 4.

Mr. **McDade**. Provide for the record the full rate throughput objectives for each type of weapon to be disposed at JACADS.

[The information follows:]

The forecasted throughput rates, by weapon type, that will be disposed of at JACADS follow. These rates are RAM-adjusted throughputs per hour and do not consider interruptions for weather, power outages, etc.

| *Munition* | *Hourly Throughput* |
|---|---|
| M55 Rockets | 39 |
| HD TC (ton container) | 0.7 |

| *Munition* | *Hourly Throughput* |
|---|---|
| HD M110 (155mm) | [1] 91 |
| HD M2/M2A1 (4.2 in. mortar) | 176 |
| GB M360 (105mm) | 165 |
| GB TC (ton containers) | 0.6 |
| VX TC (ton containers) | 0.4 |
| VX M23 (land mine) | 60 |
| VX M121A1 (155mm) | 103 |
| VX M426 (8-in.) | 41 |
| GB M426 (8-in.) | 41 |
| GB M121A1 (155mm) | 103 |
| GB MC-1 (750 lb. bomb) | 4.3 |
| GB MK-94 (500 lb. bomb) | 6.4 |
| HD M60 (105mm) | 165 |

[1] One ECR.

### OPERATIONAL COST OBJECTIVE

Mr. McDade. Tell us, have unit cost objectives, either in dollars or man-hours, been established for each of the weapon types to be disposed at JACADS?

Mrs. Livingstone. No, sir.

Relating back to your previous question, that will be determined through the operational verficiation testing.

Mr. McDade. How do you determine whether you are having a good or bad run if you don't have objectives that either express themselves in terms of dollars or some kind of efficiency test? Everybody would agree that this thing is going to do something. The question is, can we afford it and can it work properly?

Mrs. Livingstone. An can we do it safely in compliance with environmental laws.

That is why the primary purpose of OVT——

Mr. McDade. Why don't you have a unit cost either in dollars or man-hours?

Colonel Busbee. Sir, I agree with you conceptually, but we do have a prototype plant on JACADS. We will be collecting that data during the tests. That data will lead us to the capability both at JACADS for the OVT test and at the CONUS plants it will give us the baseline upon which we can assess unit cost by munition, by agent types——

Mr. McDade. When are you going to know what is a favorable management cost and how much it is going to cost in terms of dollars and man-hours to do disposals of certain types of weapons?

Colonel Busbee. We will not have that until OVT is nearing completion and we have the final test report from JACADS.

Mr. McDade. Has somebody—you or MITRE or somebody who is managing the program—said we want to do it within this cost parameter? Are you operating on a blank check?

Colonel Busbee. No, sir; we are not. It is a cost-plus award fee contract.

Mr. McDade. I am not talking about that. I am talking about you as a program manager who has so much to dispose of. Don't you have an idea of a reasonable figure in dollars or man-hours to dispose of the stuff?

Colonel Busbee. We do.

I could provide you the information that we have developed at our development facility which was in Utah, our CAMDS facility in Utah. We attempted to learn from that experience at JACADS.

[The information follows:]

JACADS' unit man-hour objectives reflect reliability and maintainability knowledge gained from testing at the Chemical Agent Munitions Disposal System (CAMDS) at Tooele Army Depot, Utah. These unit man-hour objectives are based on the facility reaching a steady state operating condition and do not consider the low ramp-up required during munitions/agent changeovers. In some cases, the steady state operating condition may not be reached due to limited quantities of munitions. Nevertheless, the unit man-hour objectives were developed using the following methodology:

There are significant man-hours incurred independent of the throughput rates of each item demiled. These hours are relatively constant regardless of the processing rates but represent a substantial contribution to the total operating costs. On an annual basis, these are:

| Category: | *Man-hours* |
|---|---|
| Monitoring and laboratory | 157,000 |
| Management, safety and environmental | 92,000 |
| Home office support | 66,000 |
| Supply | 24,000 |
| Total | 339,000 |

Direct man-hours that are specifically process related involve operations, maintenance, engineering and general support such as laundry and protective equipment maintenance. These are:

| Category: | *Man-hours* |
|---|---|
| Operations | 202,000 |
| Maintenance | 129,000 |
| Engineering | 53,000 |
| General support | 34,000 |
| Total | 418,000 |

Dividing yearly throughputs into direct man-hours can calculate the process related unit man-hour objectives. For example, at 39 rockets/hour the JACADS M55 rocket rate equates to approximately 936 rockets/day on a three shift production operation or 5,616 rockets/week or 292,032 rockets/year. These rockets would provide about 2,920,320 lbs. of agent for destruction. Therefore, on a rocket basis, the unit man-hour objective would be 292,032 rockets divided into 418,000 hours equalling to 1.43 hours/rocket or 0.143 hours/lb. of agent destroyed. A table reflecting the man-hour objective by munition type and lbs. of agent destroyed is provided:

| Demiled/Hr | Munitions Type | Manhours/ Units Demiled | Manhours/ Agent Lbs. |
|---|---|---|---|
| 39 | M55 Rockets | 1.43 | 0.143 |
| 176 | MD M2/M2A1 Mortar | 0.32 | .053 |
| 165 | GB M360 Projectile | .34 | .208 |
| 165 | HD M60 Projectile | .34 | .114 |
| 103 | VX M121A1 Projectile | .54 | .086 |
| 103 | GB M121A1 Projectile | .54 | .083 |
| 91 | HD M110 Projectile | .61 | .052 |
| 41 | VX M426 Projectile | 1.36 | 0.094 |
| 41 | GB M426 Projectile | 1.36 | .094 |
| 60 | VX M23 Mines | 0.93 | .089 |
| 0.7 | HD TC Ton Container | 79.74 | .047 |
| .6 | GB TC Ton Container | 93.03 | .062 |
| .4 | VX TC Ton Container | 139.57 | .087 |
| 6.4 | GB MK-94 Bombs | 8.72 | .081 |
| 4.3 | GB MC-1 Bombs | 12.98 | .059 |

**Mr. McDade.** Do you have any idea what would be a good, acceptable management figure in dollars or man-hours?

**Colonel Busbee.** Yes, sir.

We have those targets within our contract which is being manned by the Army Support Command in Hawaii.

**Mr. McDade.** What are they?

**Colonel Busbee.** We are presently negotiating with the contractor for the fiscal year 1990 portion, completion of the fiscal year 1990, initiation of the fiscal year 1991, $48 million for the annualized effort to get us through OVT.

### TOTAL COST OF JACADS

**Mr. McDade.** Last year we had testimony that the cost of getting JACADS to the operational stage had increased in one-year from $280.8 million to $321.1 million, a 14 percent increase. In the same period, the cost to operate and close JACADS had increased from $219 million to $239.6 million, a nine percent increase. Are those still firm numbers or what is going on?

**Mrs. Livingstone.** Those are not firm numbers. They are continuing to be——

**Mr. McDade.** What are the current numbers?

**Mrs. Livingstone.** From the baseline that you are reading of the increases to 1989, we are currently today at $334.1 million, to actually get up to operational status.

**Mr. McDade.** A $20 million increase?

**Mrs. Livingstone.** To operate and close out the facility, $287 million.

### JACADS EMPLOYMENT

**Mr. McDade.** Roughly $50 million more.

How many people does the JACADS contractor currently have on the island and how does this compare to the estimate made when his contract was signed? Give us a head count.

**Colonel Busbee.** The contractor presently has on the island—he estimated 200—the best and final offer he estimated 223 personnel.

There are now 388 personnel on the island.

**Mr. McDade.** So you have——

**Colonel Busbee.** There are 165 more than the estimate.

**Mr. McDade.** How many personnel do you think will be required for OVT and regular operations?

**Colonel Busbee.** Two hundred ninety is the target goal we have established and the objective we are negotiating with the contractor now, regular operations at the end of the OVT.

**Mr. McDade.** You are feeling confident that that can be done?

**Colonel Busbee.** I am feeling confident it should be done, but we need to seek another contractor for this effort, Mr. McDade.

**Mr. McDade.** Do we need to have a different kind of contract? We have a cost-plus going there, don't we?

**Colonel Busbee.** I would say we do not because of the difficulty of operating in an environment that we are in with a prototype facility.

It is really a research and development facility. We need to improve our management of that contractor.

Mr. **McDade**. You are not happy with the current contractor?

Colonel **Busbee**. No, sir. We made substantial changes last summer. His performance has improved, but he went zero-fee last summer when his management was rock bottom. Since that time, an award fee period has not come by where he has earned over 50 percent.

Mr. **McDade**. We understand that there have been problems about travel pay and all sorts of things involved. Is that accurate?

Colonel **Busbee**. Yes, sir. Corporate management has put in procedures that I am in the process of verifying, along with the contracting officer, to remedy those errors that were discovered by an AAA audit as well as a GAO survey.

Mrs. **Livingstone**. You had asked if we were pleased also with the contracting approach. We are not. There was a lot of bifurcated contracts for each step of the development of the JACADS facility and that was not the most efficient mechanism to proceed and henceforth for the United States-based plants, we will be integrating most of the contracting into a single contract.

I have asked the Corps of Engineers to look into allowing the construction portion of that contract to be awarded not on a cost-plus fee basis, but on a firm-fixed price basis.

I have been on the program 4½ months now and I share the concern that I am getting from your questioning about the cost accounting, and cost control mechanisms in this program. Colonel Busbee shares that concern and what we are seeing now is a potential for dramatic cost growth. There are reasons for that. We are starting out with something new. There was no baseline, but we need to do a better job getting a handle on that.

## JACADS CHAIN OF COMMAND

Mr. **McDade**. We are glad to hear that both of you are.

Last year in the hearing, we talked about the chain of command being so difficult between Johnston Island and WESTCOM and the Chemical Demilitarization Office, et cetera and DOE, which "owns the island."

We were told we would have a new management plan in four months. Instead, we got it last Friday, which is a rather lengthy slip.

Mrs. **Livingstone**. Yes, sir.

Being new to the Pentagon, I recognize that things can sometimes move slowly through that particular organization. I learned in the last 4½ months whenever you raise issues of command and control, they can move particularly slowly through that organization. There was no impact because we were not doing live agent operations on Johnston Island of not helping to clear some of those lines of authority. They were working relatively well. There was a tremendous degree of interest in the command and control issue. A lot of people wanted to coordinate on it. It was delayed in terms of provision to you and we apologize.

Mr. **McDade**. What changes in command have you made?

Mrs. **Livingstone**. Basically, the intent is that the Army will be in charge. There are very clear lines, a memorandum of understanding that will be set forth dealing with specifics of who does what when and where.

Mr. McDade. Colonel, is the Army going to manage this program?

Colonel Busbee. Yes, the Army and I as the designated program manager.

Mr. McDade. You are going to be the single link in the command line?

Colonel Busbee. Yes, sir, and we have agreed we will not hand this off to Western Command after OVT. We will retain control over the operation through the destruction of the munitions on Johnston Island.

Part of the agreement that has been reached is that following Johnston Atoll, some time between that point in time and after the Tooele facility is up and operating successfully in 1994, we will reexamine the relationship to see if we should transition this PM to a more normal arrangement that would be expected within a military department reporting to a major command like the Army Materiel Command.

Mr. McDade. Looks like you are making a right decision in establishing the Army in control over it. It is not a happy record, as you can tell, and we want to see you succeed.

Colonel Busbee. I appreciate that.

General Kicklighter, the Commander, WESTCOM, and I have a memorandum of agreement. There is a clear understanding between the responsibility of the on-island people and my technical people on the island and he has indicated to me I have his full support and I expect the same thing in return to make this past problem hopefully become less burdensome.

## JACADS CONTRACTOR

Mr. Murtha. Any idea of firing the contractors?

When prices start to escalate like this, it just seems to me that either the Army is responsible or the contractor is responsible. It looks like pretty sloppy management to me in the past. This is costing the taxpayers an awful lot of money. Is there any thought to getting another contractor at this time?

Mrs. Livingstone. Not at this time.

We have met with the President of Raytheon in December. The working relationship following that meeting improved substantially. Unfortunately, it is beginning to revert a little now. We are finding out the thousands of little small individual activities that are required to make the large milestones happen are not being supervised probably to the extent that they should be.

We are also dealing with a new system here. This is the first time we have ever built a prototype plant of this nature, so there are changes and lessons learned.

We are going to continue to work with the contractor. If we don't see significant improvement, we may do a show-cause, but at this time, we are hoping that he will be able to come around.

Johnston Island also is a very difficult work environment and it is very difficult to keep employees there. The turnover rate in some occupational codes is 30 to 40 percent.

Mr. MURTHA. We can make all kinds of excuses, but the funding is not unlimited. We have got a tremendous strain on the budget. What is the incentive for him to be efficient? When it is cost-plus, is there incentive?

Mrs. LIVINGSTONE. The incentive, I understand, is for him to get his bonus fees. When I was Chief Procurement Official of the VA, we had very little experience on the cost-plus side. Instinctively, I don't like it because it seems it doesn't work as well. In an R&D effort, when you don't know the full parameters, it is difficult to establish a fixed fee. It is something we need to manage very well because of the parameters of the contract.

Mr. MURTHA. This has been an unhappy experience for this Committee. It is so frustrating that the price keeps escalating. This is going to be extremely expensive even when operated efficiently. When operated in a sloppy manner, it is going to make it very difficult to justify these expenditures whether the President of the United States says we are going to do it or not.

Mr. Miller.

Mr. MILLER. I notice that you have a number of items, as a matter of fact, quite a few items, that are necessary to dispose of the weapons.

There is, as I understand it, one area you would move the powder out of the center of a rocket, and this would be robots that would be doing this, as I understand. Do we still have or will we have people on the floor in the building where we are removing powder, chemicals, or will that all be by robot?

Colonel BUSBEE. When the munitions are loaded initially into the building, they are brought in in containers, unloaded by personnel using either lifting devices or forklifts, placed on tables and then submitted behind barriers.

Once they go through that airlock barrier, there is no human interface, no man-machine interface with the munition from that point on.

Is that responsive to your question, sir?

Mr. MILLER. That would move from one area to the next where you would remove the powder and then the missile to a location where the liquid would be removed?

Colonel BUSBEE. Yes. That is done by robots or robotics or mechnical equipment behind explosive-proof barriers with containment of the explosive and any vapor at JACADS and at all the facilities we propose to build in the United States.

Mr. MILLER. There must be and would be an end product. You would go through two incinerators, as I understand, before the flue gas, or whatever you may want to call it, the end product is disposed of.

Is there a problem with that end product that would affect the people on the island or is it very safe to be around?

Colonel BUSBEE. Sir, our environmental requirements—we do have four incinerators. One is for burning the boxes and the dunnage that the munitions came in. Those incinerators are permitted under the Toxic Substance Control Act or the Resource Conservation Recovery Act. There are very strict limitations on the discharges from those.

The ultimate product out of stack is carbon dioxide and steam out of one of the furnaces where we have fed in the metal parts which would be metal parts suitable for selling as scrap metal and brines, salts, that will be drum-packed and handled as hazardous wastes, shipped to the United States, land-filled in an approved EPA hazardous waste landfill.

Those are the products that will come out, therefore, permits will preclude harm to the environment either aquatic or the people that are co-located at these sites.

Mr. MILLER. So the air will not be polluted from the flue gas, but there is an end product of salts that will be moved back to the United States?

Colonel BUSBEE. Yes, sir, and those salts don't contain any nerve agent, but by virtue of the high temperatures we use, they could contain heavy metals like lead and cadmium.

Therefore, we will treat them as hazardous wastes from toxic properties, but not from chemical agent properties and they will be disposed of in accordance with RCRA standards.

Mr. MILLER. Thank you.

Mr. MURTHA. Than you very much. We will have other questions for the record.

The committee will adjourn until 10:30 tomorrow morning.

Mrs. LIVINGSTONE. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

## DISPOSAL SCHEDULE AND COST

*Question.* Current law requires that the chemical weapons disposal program to be completed by September 30, 1997. You presently estimate that it will not be complete until December 1998. Will you be proposing legislation to change the law?

Answer. Yes. Also, during testimony before your Committee on April 24, 1990, and before the Strategic Forces and Nuclear Deterrence Subcommittee of the Senate Armed Services Committee on April 5, 1990, I requested legislative relief to the April 30, 1997, completion deadline.

*Question.* How likely is it that the schedule will slip even further?

Answer. The current schedule for each chemical disposal site was based on: actual construction and systemization experience at the Johnston Atoll Chemical Agent Disposal System (JACADS), best available projected durations for Resource Conservation and Recovery Act (RCRA) and Air Permit approvals, and facility operations.

We feel these latest schedules are realistic; however, some potential problems which could delay the December 1998 completion are: a chemical weapons destruction treaty, litigation concerning the Environmental Impact Statement (EIS) or permit approvals, and design changes necessitated by the JACADS Operational Verification Test (OVT) or for safety improvements.

*Question.* Last year, we were told that the total cost of the chemical weapon disposal program was $3,938,300,000, consisting of $916,500,000 appropriated before fiscal year 1988 and $3,021,800,000 projected for fiscal year 1988 and beyond. What are your current estimates and why have they changed?

Answer. The Army is developing a new life-cycle cost estimate. Cost increases are the result of several factors including the incorporation of lessons learned at the JACADS into the designs of the facilities to be constructed in the United States, changes in the construction schedules, newly imposed environmental requirements by the State of Utah, unanticipated increases in the emergency response program by the states for equipment and emergency response exercises, previously unknown manpower and equipment requirements, and a congressional decrement to the FY 90 program.

## LEAKERS

*Question.* Last year you told the Committee that the chemical weapon stockpile included about 1,000 "leakers". You further stated that you predicted about 64 new leakers per year but that this rate seemed to be increasing. How many new leakers did you experience in calendar years 1988 and 1989?

Answer. In calendar year 1988 we experienced 84 leakers against a predicted 112. In 1989 we experienced 184 leakers against a prediction of 112.

*Question.* How many new leakers are you predicting for CY90 and what has been your experience to date?

Answer. Between January and April 1990, 19 new leakers were identified with 18 of those being M55 GB filled rockets. Based on past experience we would expect total number of new CY90 leakers to be about 120.

*Question.* What do you do when a leaker is found?

Answer. On detection of a leaking munition, personnel in protective clothing containerize the munition and place it in segregated storage with other leaked munitions.

*Question.* What trends do you see for the future?

Answer. There have been no significant trends detected in the stockpile other than M55 rockets. The M55 rockets continue to be the "bad actors" and this leaker trend is expected to rise as the rockets get older.

## DISPOSAL OF FACILITIES

*Question.* Current law requires the Army to dismantle and destroy all of the facilities which will be built to destroy chemical weapons and to return the sites to their original condition. In last year's House and conference report, the Committee directed the Army to investigate and report on the feasibility and desirability of using these facilities for other purposes after the primary mission was completed. The Committee directed that the report address associated cost and design changes that may be required, as well as management alternatives for operation of such a plant. What is the status of your investigation and when will we receive your report?

Answer. The Army is planning to award a contract by 30 May 1990 to study the follow-on uses of the chemical disposal facilities. The decision to contract this effort was made to ensure objectivity and because follow-on uses outside the Defense Department also need to be included in the study. We expect the study to be completed by the end of 1990. A copy of the report will be provided to the Congress.

*Question.* Who, specifically, is conducting the investigation and review?

Answer. The U.S. Army has assigned management of this task to the Office of the Program Manager for Chemical Demilitarization. The Program Manager has, in turn, issued a request for proposal to the MITRE Corporation on an existing task order contract.

*Question.* Do the Army and the Department of Defense support alternative uses of these facilities?

Answer. The position of the Army and the Department of Defense is to comply with Public Law 99-145 which directs the dismantling of these disposal facilities upon completion of disposal operations.

However, assuming the Congress changes the law and the as of yet unknown findings of the forthcoming study are considered in any such changes, the Army would look at using the facilities to destroy non-stockpile chemical material, old chemical production facilities and perhaps hazardous wastes found on Army installations at some but not all the sites. It is important to note that the study, which will include technical analyses of engineering and process designs, is not yet complete and, therefore, future use discussions are speculative at this time.

*Question.* Current law requires not only that the chemical weapon disposal facilities be destroyed but also that they be used only for disposal of lethal chemical weapons and munitions. How does the Department propose to decontaminate and/or destroy previously constructed chemical weapon production facilities and other chemical agents and munitions not technically part of the stockpile?

Answer. Public Law 99-145 requires the dismantling of the chemical disposal facilities after they have completed their mission of destroying the chemical agents and munitions identified as part of the disposal program. The items identified for destruction include many of the so called "non-stockpile" items. The chemical stockpile and non-stockpile items that must be destroyed were identified in a classified annex to the first Annual Report on the Chemical Stockpile Disposal Program forwarded to the Congress in December 1986. The list includes standard agents (GB, VX, H) in standard containers (ton containers, 155mm, 8-in, etc.) and some different agents (BZ, lewisite, etc.) in non-standard containers (bomblets, 75mm projectiles, stokes mortar). The standard agents that are in standard containers can be destroyed in our disposal facilities without significant problems. The same is not true with non-standard containers or unknown agents in non-standard containers and munitions with unknown agents.

The problem with destroying chemical munitions that have unknown agent is significant. Prior to destroying each of the agents in a disposal facility, the Army is required to get environmental permits from the affected states. In order to get these permits, test burns are required to prove the destruction efficiency of the facility. Without knowing the agent, it will be difficult to satisfy environmental law requirements such as the Resource Conservation and Recovery Act (RCRA). The Army cannot efficiently monitor for unknown agent destruction and will not know the best pollution abatement system to use. These unknown chemical munitions must be handled on a case-by-case basis at the end of the destruction program. The study for the follow-on use for the chemical disposal facilities will incorporate a discussion of non-standard chemical munitions and agents.

Destruction of the old chemical production plants is clearly not part of the current disposal program. If the law is not changed, the chemical disposal facilities cannot be used to destroy the old chemical production plants. The Army will then have to develop separate studies for destroying these facilities.

*Question.* Why has the Army Headquarters taken no action on a request from the Army Materiel Command for relief from this legislative restriction?

Answer. There was a request from one of the ammunition plants through Headquarters, U.S. Army Materiel Command (AMC) to Department of Army to use one of the future chemical destruction facilities to destroy an old chemical production plant on its site. Department of Army has informed AMC that it intends to comply with Public Law 99–145 which requires the dismantling of the disposal plants after they have completed destroying the chemical agents and munitions and that there is no contemplation at this time to ask for an exemption to the law.

At the request of the Congress, follow-on uses of these plants will be studied by the Army through a contractor, MITRE Corporation. The study will include the feasibility of using the disposal facilities for destroying old chemical production facilities such as the one requested by AMC. If the law is changed and the feasibility of destroying the production facilities is proven, the AMC suggestion can be accomplished.

*Question.* Dr. Richardson, you have stated that the multilateral ban on chemical weapons currently being negotiated required destruction of all chemical demil facilities once all weapons are destroyed. When is this treaty likely to be signed?

Answer. It is impossible to predict with any certitude when the multilateral treaty will be signed. The U.S. is resolved to do everything possible to expedite signing this agreement. With similar cooperation from all parties a treaty in 1992 seems possible.

*Question.* Dr. Richardson, given the potential additional uses of these facilities, why does the United States support this position so early in the game?

Answer. The multilateral ban on chemical weapons currently being negotiated addresses those production facilities which might be temporarily converted for destruction of chemical weapons. Such a converted facility must be destroyed as soon as it is no longer in use for destruction of chemical weapons. The United States has no such facilities. In compliance with legislation, U.S. destruction facilities are scheduled to be destroyed after demilitarization is completed.

*Question.* What changes would have to be made to the current design of chemical weapon disposal facilities in order to accommodate alternative uses?

Answer. It is premature to consider what design changes would have to be made to the chemical weapons disposal facilities until we complete our study on the follow-on uses of the chemical disposal facilities.

*Question.* What are your current cost estimates for an alternative use strategy?

Answer. It is also premature to speculate on the costs associated with any alternative use strategy until we complete our study of the follow-on uses of the chemical disposal facilities and receive direction from the Congress to pursue alternative uses.

## JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM

### EMPLOYMENT LEVELS

*Question.* How many people does the JACADS contractor currently have on the island and how does this compare to the estimates made when his contract was signed?

Answer. The contractor currently has 388 personnel on the island (an additional 29 people are employed off the island). This compares to the original estimate of 223 personnel which was included in the contractor's best and final offer.

*Question.* How many contractor personnel will be required for OVT and regular operations?

Answer. The contractor will begin OVT with 385 personnel on-island and reduce the staff to 290 by mid-FY 1991. On-island strength will remain at 290 for the remainder of regular operations. Also, the contractor will need 25 off-island support personnel for OVT and regular operations.

### AUDITS OF VOUCHERS

*Question.* What have been the results of Army audits of vouchers submitted by the contractor?

Answer. The Contractor's lack of a comprehensive published benefits package manifested itself in a number of unapproved contractor actions. Travel vouchers did not contain supporting documentation. There were excessive charges for taxi fares and other public transportation. Cash was distributed in lieu of airline tickets, and questionable TDY trips and stopovers were noted. Unauthorized personnel were receiving allowances for safety glasses and safety shoes. The Contractor has now provided written policies, which have been approved by the Government, and has stopped providing cash in lieu of airline tickets. The Government will provide a listing of those employees authorized to be reimbursed for safety shoes and glasses.

Manual credits for overbillings relating to Hazard and International Premium and Vacation Allowance did not clearly indicate the extent, duration, and purpose of the credits. The Contractor has now provided a reconciliation of all credits due as well as those credits already provided, DCAA will be asked to verify. A recently installed software program will automatically provide timely credits. DCAA will continue to monitor the system.

Services of corporate "home office" employees were frequently billed as direct costs rather than as indirect costs (overhead). DCAA upheld the Contractor's billings; however the issue will continue to receive scrutiny by DCAA. Contractor provides a weekly summary of corporate hours charged. A monthly summary is provided to the Program Manager.

Contractor use of overtime was not adequately surveilled. Excessive overtime significantly escalated the estimated cost of the contract. The Government now requires all overtime to be approved in advance. Overtime will be allotted to the Contractor on an annual basis starting 1 October 1990. The Contractor will be evaluated on his management of the predetermined levels.

High levels of the contractor TDY personnel have been questioned by the Government. The Contractor will provide a continually updated listing of TDY personnel and the nature of the work they are performing.

The Contracting Officer has deferred reimbursement on $567,000 of invoiced costs. There is a potential $300,000 in additional deferments awaiting determination by the Contracting Officer.

## MANAGEMENT OF JACADS

*Question.* In last year's hearing, Mr. Owen agreed that lines of authority at JACADS were cumbersome between Army WESTCOM in Honolulu, the Chemical Demil Program Office, the JACADS operating contractor, the base support contractor, and the Department of Energy which "owns" the island. Mr. Owen promised to have a new chain of command organization submitted to the Committee in four months. Why did it take until last Friday to get the new plan to us?

Answer. Last year when Mr. Owen stated that the plan could be developed within four months, we thought that it would be a relatively simple task. By that summer, we knew that it would take much longer. Therefore, an interim reply was sent to Congressman McDade in August 1989.

In addition, since Johnston Island wasn't the only location that the command and control concept affected, the plan had to be further coordinated with additional commands and agencies. We took longer than expected to resolve all the issues that were brought up by these affected commands and agencies.

*Question.* Why does last Friday's letter not address specific management problems at JACADS, which was the subject of discussion at last year's hearing?

Answer. The letter explains the command and control concept for all present and future chemical disposal facilities, to include JACADS.

*Question.* What management changes are being made at JACADS and how will they improve the chain of command? How specifically will these changes improve the response to an accident at the island?

Answer. The most significant change made by the revised command and control concept is that the Program Manager for Chemical Demilitarization (PMCD) will be responsible for designing, constructing, testing and operating all of the disposal plants. This will give the most experienced and knowledgeable agency the responsibility, as well as the accountability, for the disposal plants.

The Contracting Officer's Representative is under the operational control of the PMCD. The Contracting Officer remains with the

U.S. Army Support Activity, Hawaii. The Program Manager for Chemical Demilitarization has primary responsibility for making changes to the Operations and Maintenance contract.

The Commander, U.S. Army Chemical Activity, WESTCOM (USACAW), will continue to safely store, maintain, and secure the chemical munitions on Johnston Island. The Commander of Johnston Island is responsible for the day-to-day operation of the island. He is, in essence, the installation commander. He provides the base support activities (food, shelter, utilities, etc.) to the Commander, USACAW and to the PMCD for their operations. The lines of responsibility are clear.

During emergencies, the situation changes. There is a Memorandum of Agreement between WESTCOM and the Defense Nuclear Agency (DNA) that for significant chemical emergencies the Commander, USACAW will be given overall responsibility for reacting to the emergency. The Johnston Island installation activities and the PMCD personnel will support the USACAW Commander in dealing with the emergency. The lines of command in emergency situations are also clear.

The PMCD; Commander, U.S. Army Western Command; and the DNA have discussed the new command and control concept and are committed to supporting it.

*Question.* What specific actions have been taken to implement these changes and what is the plan for additional implementing actions?

Answer. The Vice Chief of Staff of the Army sent a message to all commands on March 23, 1990, implementing this revised command and control concept for the chemical disposal plants. This message directed the implementation at Johnston Island as well as all of the future disposal sites.

No additional implementing actions are currently contemplated.

*Question.* We understand that the Army was given the opportunity to take over the management of Johnston Island but turned it down. Is this true?

Answer. The Defense Nuclear Agency (DNA) asked the Office of the Secretary of Defense (OSD) to transfer the responsibility of Johnston Island to the Army. OSD directed a study to review the effects of such a transfer. The Army and DNA have not yet completed the study, and no decision to transfer responsibility has been made.

*Question.* Since the Army is by far the largest activity and employer on the island, why should they not manage it?

Answer. Although the Army is the largest current tenant on the island, we are a temporary tenant. When the chemical munitions are destroyed, there will be no need for Army presence on the island. The transfer of management of the island is a more complicated matter than just determining who has the greatest number of personnel on the island. There are some complicating issues of past contaminations that still require resolving. In addition, the future role of the island must be determined. Regardless of the final decision, the Army will do its share to support the management of the island.

## CRYOFRACTURE

*Question.* Last fall, Under Secretary Betti requested a review of the cryofracture program by three respected DOD scientists. This group recommended that the cryofracture program be continued, with a focus on the technological uncertainties. What are these uncertainties and how is the cryofracture program addressing these priority research areas?

Answer. The DA tasked the MITRE Corporation to provide an assessment of the cryofracture technology (as well as the baseline/JACADS technology) and to identify the technological uncertainties which could have a significant impact on performance. The study was completed in March 1988 and identified knowledge gaps in the following areas: (1) reliability of robotic munition handling equipment and cryo pretreatment for some munitions, (2) feasibility testing of the cryofracture process with live explosives, (3) incineration of the more complex cryofracture feed, and (4) safety of an integrated robot system as well as the live explosive cryofracture and incineration process.

The current (FY 90–91) cryofracture test program is structured to evaluate the technical uncertainties of knowledge gaps identified in the MITRE report within the limits of available test facilities and equipment.

The test program includes simulant testing at General Atomics facilities in San Diego, California, explosive testing at a government test facility, and agent/incineration testing at Tooele Army Depot (CAMDS and AED).

The test program will address the outstanding knowledge gaps that are considered necessary to resolve prior to proceeding to pilot plant demonstration tests. Pilot plant demonstration testing will provide the necessary evaluation of a scaled up cryofracture agent incineration process prior to proceeding to a full-production operation.

*Question.* The Congress directed last year that cryofracture research be continued with all deliberate speed until it can be shown conclusively, based on demonstrated performance, that the baseline approach can achieve expected cost, schedule, and technical performance. In this regard, Congress directed that design, engineering, environmental, and other preparatory work for a full scale cryofracture plant be undertaken. What is the Department doing to implement this direction?

Answer. A letter contract was awarded in January 1990 to initiate the developmental testing program by General Atomics, La Jolla, California, to further test the cryofracture technology and close knowledge gaps. This contract will be definitized in May 1990.

Oak Ridge National Laboratory will prepare the site-specific Environmental Impact Statement.

A contract proposal to provide environmental sampling/analysis for sampling stack emissions during cryofracture/incineration testing at the Chemical Agent and Munitions Disposal System (CAMDS) is being developed.

A contract with the MITRE Corporation to assist/evaluate the testing program will be awarded shortly.

The facility design of a cryofracture plant will be initiated as a part of the process design contract scheduled for award not later than September 1990. This phase of the design work always was planned, and is still planned, as a contract option in that process design contract. The actual initiation of the facility design will be timed to reflect results of technological testing to be accomplished by General Atomics and to take place at the appropriate stage in the process design.

*Question.* Our Surveys and Investigations Staff advises us that last month, the Program Manager was directed by Mrs. Livingstone to cancel any underway efforts for a cryofracture facility design. Why was that decision made?

Answer. We have always planned to award an architectural and engineering contract which would allow the Department to proceed immediately with the process design and leave open the option, when appropriate, to begin the design of a cryofracture facility. The original thinking was, at the conclusion of the JACADS OVT—which should coincide with the conclusion of the cryofracture development and testing effort—to make a technology decision based on available data and, if appropriate, begin facility design at that time.

*Question.* Does it not make sense to have the same contractor concurrently do both a "process design" (which you have agreed to do) and a facility design? Is it not true that significant schedule and cost problems at JACADS resulted from separating these efforts?

Answer. It is preferable to have the same contractor do the process and facility designs. The cryofracture design contract will be awarded for the process design with an option for the same contractor to do the facility design.

The separation of the facility and process designs for JACADS resulted in some problems in management of the design interfaces between process and facility; however, significant shedule and cost problems did not result from separating these design efforts.

*Question.* What appropriations paid for the facility design for JACADS, CAMDS, and the Tooele Demil facility and how much did those designs cost?

Answer. The Military Construction, Army appropriation paid for the JACADS and the Tooele Demil Facility design at a cost of $2.1 million and $10.1 million, respectively. The CAMDS facility was designed and procured using Procurement of Ammunition, Army appropriation funds. The design was accomplished in the early 1970's; therefore, cost data is not readily available.

*Question.* Mrs. Livingstone, you have stated that "the Army plans to construct eight chemical disposal facilities within the United States modeled on the JACADS facility". Does this mean that the Army has made an unalterable decision to use the baseline approach even if JACADS experiences cost or schedule problems and cryofracture or other approaches show promise?

Answer. Since the baseline techonlogy is the only proven technology that we have today, it is the only technology that we realistically can consider when talking about construction of future facilities; however, no decisions are unalterable.

*Question.* What are the milestones for process design, engineering, environmental, and other preparatory work for a full-scale cryofracture plant?

Answer. The milestones for the cryofracture program are as follows:

Cryofracture testing—Jan 90–Jun 91.

Process design [1]—Jul 90–Oct 91.

Environmental Impact Statement—Jul 90–Dec 91.

RCRA/air permits—Feb 91–Jul 93.

*Question.* Are previously appropriated funds for cryofracture research sufficient to complete the current program envisioned by the Committeee for these years? If not, how much additional is needed?

Answer. Since the program was restarted in January 1990, we have analyzed the funding requirements to complete the development, test, design and environmental work for the cryofracture/incineration process and have determined that this effort may require up to an estimated $11.3 million. Until the contracts are actually negotiated and awarded, we can only estimate the costs.

*Question.* Why does the fiscal year 1991 budget include no funding for this program?

Answer. At the time the FY 1991 budget was being prepared the additional requirements had not yet been identified.

*Question.* How much would be required in fiscal year 1991 to continue cryofracture research, and for what purpose?

Answer. As stated previously, up to $11.3 million would be required. These funds are required to complete the development and test effort, complete the process design, and initiate facility design for the cryofracture/incineration program.

*Question.* If no further cryofracture research is funded, where will that leave the program?

Answer. If the cryofracture program is not funded beyond the current FY 1990 levels, some developmental testing to be performed by General Atomics would be dropped, thus not all critical knowledge gaps would be satisfied and uncertainties in the plant design would occur; process design would be stopped at the 60% level; facility design could not be initiated; and MITRE oversight of developmental testing and evaluation of the cryofracture technology relative to the JACADS technology would be available.

*Question.* Dr. Richardson, what interest has the Soviet Union shown in the cryofracture programs and what has been the response of the Department?

Answer. Destruction technology talks with the Soviets have been general to date. However, in the last round of bilateral negotiations they were more disposed to deal in the specifics of US work on destruction. The next experts meeting will be in the Soviet Union in early June. At that time the various technologies will be discussed and proposals for technology transfer will be developed. It is in the US interest to provide all the technological data and assistance possible to improve the Soviet destruction program.

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[1] Facility design can be initiated only if funds are available.

## TOOELE ARMY DEPOT FULL-SCALE FACILITY

*Question.* Mrs. Livingstone, you have stated that "the Congressional reduction to the fiscal year 1990 chemical disposal budget will delay the completion of the disposal facility at Tooele Army Depot, Utah". But in the fiscal year 1990 appropriation, Congress provided everything the Army said it needed for procurement: $73 million in budget authority and $25 million in unobligated balances from fiscal year 1988. The unobligated funds were appropriated for cryofracture plant equipment which was never procured. Please explain your statement.

Answer. The cryofracture incineration program was terminated concurrent with the development of the FY 1990 procurement budget for the Chemical Demilitarization Program. Because at that time there were unobligated FY 1988 funds for cryofracture plant equipment, which could no longer be used for that purpose, OSD directed the Army to use those funds for the procurement of baseline equipment. The Army's FY 1990 procurement budget for the Chemical Demilitarization Program was decremented accordingly by OSD. Therefore, although there were unobligated FY 1988 funds at the time of the FY 1990 Appropriations Act, the funds were committed, and needed, for the procurement of equipment for the Tooele facility.

*Question.* In fiscal year 1988, Congress appropriated $28 million more than the Department said it needed for the "modified baseline" in order to support cryofracture research. How much fiscal year 1988 cryofracture funding was reprogrammed and what specifically was it used for?

Answer. The Department of Defense submitted a budget of $170.6 million for FY 1988 for the modified baseline approach. The 1988 Appropriations Bill included $27.9 million more than requested in order to pursue Variation 1, making the total of $198.5 million. In the March 1988 Implementation Plan submitted to the Congress, the Army included a cryofracture testing program and construction and testing of a pilot-scale cryofracture plant. In September 1988, the cryofracture program was terminated by the Secretary of Defense.

The $27.9 million was used in the following manner:

R&D—$1.4 million (0.8—cryofracture feasibility testing) (0.6—agent monitoring development).

Procurement—$22.5 million (11.1—chemical retrograde program) (0.7—JACADS perimeter monitoring equipment) (0.2—Gramm-Rudman-Hollings reduction) (10.5—Tooele Army Depot and Central Demilitarization Training Facility equipment).

O&M—$4.0 million (4.0—BZ disposal operations).

*Question.* Why do you claim that your "procurement problem" is $37 million when the shortfall is only $25 million?

Answer. In my cover letter to the FY 1989 Annual Report for the Chemical Demilitarization Program I informed you that there were several reasons why it would be improbable for us to meet the April 1997 program completion deadline. I stated that a $37 million Congressional decrement to the program was one factor which contributed to the program delay. As a result of a more recent analysis of that situation. I now understand the congressional decrement to the program was $25 million, not $37 million as originally determined. That $25 million was budgeted for the acquisition of equipment for the Tooele facility and contributed to delaying the completion of that plant.

As you know, during FY 1989 we initiated the German retrograde program using Chemical Agents and Munitions Destruction, Defense funds. I now understand that the remainder of the $37 million problem is attributable to this action.

*Question.* Is the shortfall made up in the fiscal year 1991 budget?

Answer. Yes.

*Question.* Is the reduction the only reason that the Tooele plant has been delayed? What are the other reasons and how do they compare in importance to the funding reduction?

Answer. No. Since last fall, several problems have developed which have necessitated making changes to the Tooele equipment acquisition schedule. Specifically, test data from JACADS and CAMDS dictated some design changes to the incinerators resulting in schedule slips for these major equipment systems. The affects of these delayed equipment deliveries are being evaluated. All in all, the technical problems experienced in the last six months have caused delays in these incinerator acquisitions to the point where the schedule impact of the FY 1990 budget cut in itself is minimal.

*Question.* Last year you stated that the total procurement requirement for this facility was $116.2 million and the total military construction requirement was $54.4 million. What are your current estimates and why have they changed?

Answer. The current procurement estimate is $183.6 million and the military construction estimate is $101.8 million. Additional munition handling equipment and spare parts caused the procurement increase. Higher military construction costs result from the systems contract being awarded based on a 60% design package, building modifications, and engineering changes. Additionally, the military construction cost estimate includes $11.8 million for Tooele Army Depot installation support facility upgrades; e.g., roads, laundry, battery charge house.

*Question.* What are the current milestones for this facility?

Answer. Completion of construction—March 1992; completion of systemization—September 1993; completion of operations—December 1998.

## EMERGENCY RESPONSE

*Question.* The budget includes $13.9 million in procurement and $11.4 million in operations and maintenance for the emergency response program. Describe this program and its present status.

Answer. The Chemical Stockpile Emergency Preparedness Program (CSEPP) has as its basis Public Law 99-145 which requires that maximum protection be given to the public and the environment when the chemical agents and munitions are destroyed. During the development of the Programmatic Environmental Impact Statement (PEIS) for this program, it was determined that, although accidents are very unlikely to happen, there were some instances where these low probability occurrences had very high consequences.

Because such occurrences could cause fatalities in the communities surrounding the storage sites, the public started demanding that the Federal Government increase the emergency response capabilities of the communities. The Congress directed the Army to conduct a program to do this and appropriated funds to start the program.

In 1988, the Army completed a Memorandum of Understanding with the Federal Emergency Management Agency (FEMA) to jointly manage this program. After a slow start, the CSEPP has picked up momentum and is now moving along at full throttle. Funds are being released from the Army through FEMA to the states for communications equipment, hiring emergency planners, training first responders, revising emergency plans, educating the public about the program, upgrading emergency operations centers, etc. In a few months, the outdoor warning system can be procured by the states.

Policy for the program is determined by the CSEPP Steering Committee co-chaired by the Army and FEMA and composed of representatives from both agencies, the Environmental Protection Agency and the Department of Health and Human Services. The functional work is done by six subcommittees.

Much work remains, but the program is now aggressively attacking these critical problems. Congressional funding will be required to finish upgrading the states' and communities' emergency preparedness programs and to conduct comprehensive exercises.

Funds are transferred directly from the Army to FEMA and from FEMA to the states (as grants) through the Comprehensive Cooperative Agreement process. The states will procure most of the equipment for this program. Although the CSEPP is managed at the Federal level, the decisions on what is needed are made by the states and counties.

*Question*. What changes have taken place in this program since last year?

Answer. Since last year, significant changes have been made to the CSEPP. First of all, the CSEPP Steering Committee is a more active body, and it has established six subcommittees to do its functional work. The subcommittees are: Planning, Public Affairs, Exercise, Training, Computer Applications, and Re-Entry and Recovery. The states have a representative on each of the subcommittees.

Prior to November 1989, there was much confusion as to the direction this program was to take. That month, a conference was held in Utah for the Federal agencies, states, and counties. It was the first time that most of the affected agencies met to discuss the program. The conference was a learning experience for everyone and a step in getting all of the parties working toward a common goal. A second conference was held in Oregon in May 1990.

The CSEPP Management Plan was finalized and sent to the states in April 1990. The draft Planning Guidance was also sent to the states in April. During the year, the states have been provided funds to develop their emergency plans, hire county planners, upgrade communications, study their requirements for emergency operations centers, train first responders to emergencies, etc. In addition, the Army installations have been upgrading their communications capability. In May, the states will be provided with the guidance for procuring their outdoor warning system (sirens). Once they complete the engineering studies for siting and control, the states will be able to procure the system. Later, an indoor warning system (probably tone alert radios) will be procured.

An important accomplishment was to better define the automation requirements and reduce the scope to a few systems for later evaluation. Both the on-post and off-post systems must be compatible and able to "talk to each other." A demonstration of each system was held during the Oregon conference.

*Question.* What specifically is the intended use of the budgeted funds in fiscal year 1991?

Answer. In FY 1991, the states will procure equipment for upgrading their emergency operations centers, providing protection for people too close to the installation for evacuation, upgrading communications to the state EOCs, and site-specific requirements. The states will continue to require funds for salaries for state and county emergency planners, training, travel and administrative needs.

Funds will also be required for FEMA Headquarters and FEMA regions to support the full-time employees hired to help manage this program.

Finally, funds are used for contractors to support the Army, FEMA and the states. Contractors also support all six subcommittees.

*Question.* Last year you estimated the total cost of the emergency response program to be $100 million. What is your current estimate and why has it changed?

Answer. The $100 million estimate was made back in early 1988 on a pure guess. With better information now, we find that estimate to be low; however, until the states fully develop their plans and know what equipment they will procure and what additions they need to have a fully working emergency response program, the cost figures will still be estimates. Currently, the estimate is $250–300 million for the complete program.

The most significant cause of the increase in funds is the length of the program. When the 1988 estimate was made, we assumed the Army would complete the program by 1992. Now, we know the Army will be involved until after all the chemical agents are destroyed in 1998.

Second, no thoughts were given to conducting exercises back in 1988. The Army and FEMA have mutually agreed that the only way to ensure that the CSEPP has correctly completed what is required is to conduct periodic full-scale Army/state exercises. These exercises are very expensive as they will not require federal agencies, but state and local government participation.

Finally, the administrative and equipment costs for the program are higher than first envisioned.

*Question.* Is your fiscal year 1991 budget adequate to cover all expected requirements? If not, why, and by how much is it deficient.

Answer. When the FY 1991 budget was being developed in 1989, the CSEPP was still being formulated. The thinking at that time was that FY 1991 would be the last year of the program and therefore the last of the equipment would be procured during the year and the plans and training would be completed. As stated in the earlier question concerning cost growth, the concept for the program has changed and therefore the requirements for FY 1991 are larger than was estimated when the budget was first formulated. The shortfall is currently estimated to be $8.6 million of Operations and Maintenance funds.

The Department has yet to determine how to resolve this deficiency.

## CHEMICAL AGENTS/MUNITIONS OUTSIDE THE STOCKPILE

*Question.* The latest revision to the Chemical Stockpile Disposal Program (CSDP) does not address disposal of "Recovered Chemical Munitions" or "Unwanted Chemical Surety Material". What are these items and how many do we have?

Answer. Recovered chemical munitions are mortar cartridges, artillery projectiles, bombs, bomblets, levins projectile, cw agent test kits, cluster bomb canisters, Department of Transportation (DOT) bottles, and WWII German tractor rockets that have been recovered from range clearing operations and research and development tests. Some items are pre-WWII. The unwanted chemical surety material is bulk agent that is considered excess to our RDT&E mission and agent that has been removed from leaking chemical munitions and from agent from the Rocket Assessment Program.

There is a total of 6,046 range recovered chemical items on the inventory as of 31 Dec 89. Many of the items (4,408) are unidentified glass bottles from WWII war gas identification sets which were used for training of soldiers. For many munition type items, the fill and agent weight is unknown, because the agent markings are no longer identifiable. Additionally, we have unwanted chemical surety material excess to our testing needs at APG, i.e., 3844.7 lbs of agent VX. It is expected that we will continue to increase the number of range recovered items as more are found. Current breakdown by site is as follows:

| Site: | *Number of items* |
|---|---|
| DPG | 58 |
| APG | 153 |
| PBA | 5,721 |
| TEAD | 61 |
| JI | 33 |
| PUDA | 1 |
| ANAD | 19 |

At APG we also have quantities of incapacitating agent (BZ) and EA 3834. The following is provided for your information.

Approximately 248 lbs of EA 3834 is bulk.

Approximately 84 lbs of BZ is bulk and the rest is in munition form.

*Question.* Where are these items stored currently?

Answer. The items are currently stored at JI, ANAD, TEAD, APG, LBAD, PUDA, PBA, UMDA, DPG. NAAP is the only site that does not have range recovered or unwanted surety material.

*Question.* What is the Department's plan for disposal of these items and at what costs?

Answer. Although the current Chemical Stockpile Disposal Program does not specify the destruction of the "unwanted chemical surety material" and "recovered chemical munitions," some in fact will be destroyed as part of the program. Those items that are standard chemical agents (GB, VX, H) in standard containers (105mm, 15mm, 8-in, ton containers, etc.) will be destroyed as part of the program. Those items that are in non-standard containers such as stokes mortors, bomblets, or 75mm projectiles; those that are rusted; and those that have an unknown fill will need special handling. The Army still needs to determine the best and safest method for destroying these agents and munition.

The Congressionally directed follow-on use study will be used to determine whether the disposal facilities could or should be used for this purpose. If the study concludes that it is feasible to use the disposal facilities to destroy these non-standard items, a plan will be developed. No cost estimates are available at this time for destroying these items.

*Question.* Can the facilities being constructed under the CSDP be used to destroy these items, given the legislative restriction that they "may not be used for any other purpose than the destruction of lethal chemical weapons and munitions"?

Answer. Public Law 99-145 requires the dismantling of the chemical disposal facilities after they have completed their mission of destroying the chemical agents and munitions identified as part of the disposal program. The items identified for destruction include many of these so called "non-stockpile" items. The chemical stockpile and non-stockpile items that must be destroyed were identified in a classified annex to the first Annual Report on the Chemical Stockpile Disposal Program forwarded to the Congress in December 1986.

From the legal viewpoint, most of the "non-stockpile" items can be destroyed by the disposal facilities. Operationally, however, destruction will not be simple. As stated earlier, those items that have standard agents (GB, VX, H) in standard containers (ton containers, 155mm, 8-in, etc.) will not pose major problems. Those that are not in standard containers or have unknown agent will provide significant problems since neither the equipment nor the procedures to destroy these items have been developed.

The Army will discuss possible disposal of these items in the follow-on use study for the chemical disposal facilities.

*Question.* Since many, if not most, of these items are "non-standard," what equipment changes will have to be made if CSDP facilities are used?

Answer. The overall issue of disposing of "Recovered Chemical Munitions" (RCM's) is more complex than the process equipment adaptability. The first problem in addressing non-standard munitions is the environmental permitting requirements; i.e., the need to identify the specific waste to be processed and the lengthy process to obtain the required permits (RCRA/Air). Each RCM must be evaluated as to whether it can be moved safely and whether the chemical fill is compatible with existing equipment; i.e., agent room filters. Equipment similar to the previously used Drill and Transfer System (DATS) to drill and drain liquid agent (or simply sample the chemical agent for analysis) may be required. The existing furnaces could probably be adapted to process most munition configurations; i.e., explosively configured items in the Deactivation Furnace, non-explosively configured munitions/containers in the Metal Parts Furnace and liquid agent in the Liquid Incinerator. Another major concern is the overall plant monitoring system and laboratory analytical procedures that must be available and in place; i.e., detailed precision and accuracy testing complete and personnel fully trained. In summary, before specific equipment changes can be identified to process RCM's in the CSDP plants, additional specific information concerning the chemical agent fill and explosive configuration of the munitions needs to be determined.

*Question.* Would a cryofracture facility, if the technology works, not be ideally suited to destroying these items, since the equipment does not have to be tailored for individual weapon types?

Answer. Cryofracture suitability to processing "Recovered Chemical Munitions" (RCM's) would be subject to the same complications noted in the previous question concerning the CSDP plants. The overall issue of disposing of RCM's is more complex than the process equipment adaptability. The first problem in addressing non-standard munitions is the environmental permitting requirements, i.e., the need to identify the specific waste to be processed and the lengthy process to obtain the required permits (RCRA/Air). Each RCM must be evaluated as to whether it can be moved safely and whether the chemical fill is compatible with existing equipment, i.e., agent room filters. Another major concern is the overall plant monitoring system and laboratory analytical procedures that must be available and in place, i.e., detailed precision and accuracy testing complete and personnel fully trained. Equipment similar to the previously used Drill and Transfer System to drill and drain liquid agent (or simply sample the chemical agent for analysis) may be required. The cryofracture deactivation furnace could probably be adapted to process most munition configurations if the cryofracture pretreatment is feasible. The potential advantage of the cryofracture process would be the elimination of an explosive removal step and possibly the agent drain step. The unknown in this application of cryofracture is its ability to freeze and fracture the munitions which in many cases are extremely corroded and in some instances in excess of 40–50 years old. The liquid nitrogen cooling process creates stress within the munitions that could result in structural failures or in a worst case result in an explosive incident initiated by pinching or crimping of agent/explosive elements. Testing has indicated that the cryogenic cooling of explosives will afford little desensitizing and, therefore, not mitigate the potential problem. In summary, until additional information concerning the agent fill, munition and explosive condition is known, as well as determination of the feasibility of cryo-treatment of these munitions, the application of cryofracture of RCM's is unknown.

## ON-SITE CONTAINERS

*Question.* The Army has developed an On-Site Container (ONC) to be used to transport munitions from storage sites to the chemical disposal facilities. According to the Committee's Surveys and Investigations Staff, officials at the disposal sites where ONC's will be used unanimously felt that their use was unnecessary, would result in unnecessary cost, and could increase hazards because of extra handling requirements. Why are ONC's proposed to be used at some sites but not at others?

Answer. With respect to additional handling steps, analyses have been performed which determine that there are no substantiated additional handling requirements when using the ONC as compared to the transportation methods currently employed at the disposal sites. In fact, there are significantly fewer times munitions are handled with the ONC than the current shipping techniques, considering the overall demilitarization process. With the ONC, the individual munitions or pallets are loaded once at the igloo and are never handled again until the ONC is emptied in preparation for destruction of the munitions. Using the handling process used currently at the disposal sites, the munitions must be handled repeatedly when loaded at the igloo, unloaded at the demilitarization site, during temporary storage at the site, and when being moved to the disposal process for destruction. In addition to providing fewer handling steps, and thus less risk, the ONC provides protection to the munitions against accident forces from impact, static loads, fire, and puncture. Using the ONC substantially reduces the probability of agent release in most types of accidents. The ONC provides as great as 300-fold protection during transportation on site. In temporary storage, the ONC can prevent the occurrence of accidents caused by earthquakes, small aircraft crashes and tornadoes. In addition, the ONC provides protection by as much as a factor of 1700 for handling accidents during temporary storage.

In terms of using ONC's at some sites but not at others, the exception is Newport Army Ammunition Plant (NAAP). The chemical agent at NAAP is stored in bulk ton containers in a single large warehouse. The demilitarization facility will be built within 200 feet of this warehouse and connected to it by a conveyor. There is no need for a container in this circumstance.

Even though these issues were addressed in the original analysis of candidate containers to meet the CSDP requirements, the Office of the Program Manager for Chemical Demilitarization has recently committed to conduct a more detailed comparative cost and risk analysis of candidate containers for on-site movement of chemical weapons. This analysis will be performed to determine in greater detail if other containers are less expensive and can meet the risk levels committed to by the Army in the Final Programmatic Environmental Impact Statement for the CSDP.

*Question.* What is the cost difference between the ONC and the steel containers being used to carry chemical weapons across Germany and out of Europe?

Answer. In terms of unit capital cost, each ONC is estimated to cost $167,000. The European retrograde system consists of an outer MILVAN which costs about $7,000 each, and 10 inner secondary steel containers which cost about $2,300 each. Analyses indicate that the European retrograde system does not meet the performance requirements of the on-site container. As previously mentioned, an analysis is planned which will detail the overall cost difference between the two approaches, and determine how the systems meet the risk requirements of the CSDP.

*Question.* Is it true that the ONC was designed at a time when the Army was considering moving chemical weapons to a single or region disposal facilities, a strategy which has now been abandoned?

Answer. The basic concepts of an off-site container with its own set of performance criteria and an on-site container with an analogous but entirely different set of criteria were developed at the same time and published in the Final Programmatic Environmental Impact Statement for the CSDP. The performance criteria for the container for off-site transport of chemical munitions would have required a substantially greater level of protection against accidents, because of the greater potential for accidents and the greater consequences of these accidents as compared to the on-site scenario. Both of these concepts were developed in order that a programmatic decision could be made on the location of the destruction facilities; either at each disposal site or at regional or national sites. The subsequent Record of Decision for the CSDP chose on-site destruction as the method of disposing of the chemical stockpile, thereby eliminating the requirement for an off-site container. The design of the ONC was recently completed by Sandia National Laboratory, working under the Department of Energy. The use of the on-site container substantially reduces the risks of on-site transportation of chemical munitions.

*Question.* Because of the weight of the ONC, the Army is planning to spend more than $15 million to upgrade roads on the CONUS facilities. This is in addition to the estimated $99 million cost for the containers and associated equipment such as trucks, forklifts, and material handling equipment. Has the Army considered alternatives to the ONC that might save money?

Answer. Road upgrades are required at some of the locations regardless of the shipping method employed. Roads at some locations are simply unpaved, fair-weather roads that cannot withstand the increased traffic which will be experienced during the demilitarization program. It is not possible to attribute the exact cost impact of road upgrade requirements due to the use of the on-site container. During the process of developing the concept for the on-site container, and again in the design and development of the ONC, the Army considered several alternatives to a specially-designed ONC. There were some containers, such as radioactive materials casks, which met the ONC performance criteria, but these containers were very expensive and had very small capacities for shipping munitions. There were also many containers which were less expensive than the ONC but which did not meet the performance criteria. The ONC, as designed for the transport of chemical munitions, is the best blend of cost and performance characteristics for meeting the unique combination of requirements for safely shipping the chemical muntions. The Army will reexamine the ONC and less expensive containers and conduct a comparative cost and risk analysis to determine if the risk level specified in the PEIS can be met by a less expensive transportation technique. The analysis will be by munition and agent type as well as by disposal site. A decision to acquire containers for the CSDP will be made on the basis of the results of this comparative cost and risk analysis. This decision will be made during the second quater of FY 91.

*Question.* Why is the $5,000 container being used at JACADS to transport rockets not suitable to transport the same type of rockets at other locations?

Answer. The $5,000 container to be used at JACADS, known as the Single Pallet Only Rocket Transporter, or SPORT, will not meet the impact, puncture, static load and fire resistance criteria established in the FPEIS for the CSDP for an on-site transportation container. The JACADS operations is not governed by the Army's commitments made for the CSDP; rather, the JACADS operation has been addressed by a wholly separate Environmental Impact Statement, with its own unqiue set of plans and commitments by the Army. The rationale for the use of a different kind of container at JACADS as compared to the CSDP rests on the primary difference in the two programs. That difference is, at JACADS, being some 600 miles from the nearest land mass, there is no general public to provide protection against the effects of a chemical accident, while each of the CSDP sites has a general public which must be afforded protection. The ONC provides that protection. The SPORT could not.

*Question.* Why is the $2,000 steel container used to transport projectiles across Germany not suitable for transportation of projectiles at other locations?

Answer. The container system planned for use for the European retrograde operation is a MILVAN which is a standard intermodal shipping container modified for military use. Each MILVAN contains about 10 inner containers, called secondary steel containers or SSCs, which actually carry the munitions. The unit price for the MILVAN is about $7,000. Each of the SSCs cost about $2,300. Earlier analysis of the European retrograde container system, which consisted of munitions loaded in SSCs loaded in MILVANS, indicated that it will not meet the impact, puncture or fire resistance criteria established for the CSDP on-site movement. If the SSCs were considered alone for shipping munitions. Their performance parameters vis-a-vis the on-site container performance criteria would be even less. However, as discussed in the response to question 58, the Office of the Program Manager for Chemical Demilitarization will perform a comparative cost and risk analysis between the ONC and other containers, to include the European retrograde system. That analysis will determine, in detail, the performance characteristics of the European retrograde container system vis-a-vis the CSDP on-site transport container performance criteria and the levels of risk to which the CSDP has committed itself. If the European retrograde container system can meet the risk levels required by the CSDP, and is cost effective; then it may be a viable candidate for shipping some munitions at some sites. In terms of the comparision between its use in Germany and in the United States, the Federal Republic of Germany (FRG) determined the level of risk to which its citizens will be involuntarily exposed in a lethal chemical weapons movement.

## PINE BLUFF ARSENAL BZ DISPOSAL FACILITY

*Question.* The Army recently completed the disposal of nonlethal chemical munitions, BZ, at the Pine Bluff Arsenal. It had been the

Army's plan to modify this facility to dispose of the remaining chemical weapons stored at Pine Bluff. Is this still the case? If not, please explain.

Answer. In May 1989, the Army made a decision to build a new MDB instead of renovating the BZ disposal plant.

The decision is supported by the following considerations:

The BZ plant design was completed in 1983; the JACADS design was completed in 1985 and the first CONUS plant (the Tooele chemical demilitarization facility (TOCDF)) design was completed in 1989. The TOCDF design is a culmination of CAMDS testing and JACADS lessons learned to date.

Current safety and environmental criteria for CSDP plants are more stringent than those which existed at the completion of the BZ plant design. Specifically, criteria for agent vapor containment, special clearance for personnel working in contaminated areas in DPE protective equipment, firewall criteria, and floor drains and double wall sumps needed to contain spills to satisfy RCRA requirements could not be met by the modified BZ MDB as originally envisioned. Waivers to basic safety criteria would be required by the modified BZ plant resulting in an inherently less safe operation at Pine Bluff Arsenal.

The current approach results in a plant with higher operational capacity than that of the converted BZ plant. As a result, operations are reduced by about five months. Based on the current approach to CSDP scheduling, use of the converted BZ facility would extend the Pine Bluff Arsenal schedule by about five months and would extend the overall CSDP completion schedule into 1999 by four months.

Life cycle costs for the two primary options favors the current approach. The cost difference is about $18 million over the current life cycle cost of $462 million at PBA.

In addition to the major factors of safety criteria, schedule and life cycle costs, the current approach to the PBCDF carries advantages of commonality with other CSDP plants. Equipment design, operating procedures and training of the PBCDF operation and maintenance personnel will now be essentially identical to other CONUS plants. Using the converted BZ plant would have introduced significant differences in these areas.

*Question.* How much did the BZ facility cost, and how much of that cost can be attributed to design changes made to enable the facility to be converted to destroy other weapons?

Answer. The original cost estimate to build the BZ disposal facility was $8.2 million. When the decision was made to add to the BZ design the capability to dispose of PBA's lethal chemical stockpile, an additional $2.0 million was estimated to be required to build the explosive containment room (ECR) and explosive containment vestibule (ECV) required for explosive demilitarization. This brought the programmed amount to $10.2 million.

The final construction cost of the BZ disposal facility was $8.8 million or $1.4 million less than the programmed amount. The cost impact of the ECR and ECV was most likely less than estimated.

The cost of equipment and equipment installation for the BZ disposal facility was $34.7 million. There was no additional cost for equipment and equipment installation associated with the addition of the ECR and ECV.

*Question.* How much will it cost to construct and equip a new facility?

Answer. The current MCA estimate for a new facility at PBA is $45.1 million. An additional $129.4 million of PAA funding is required for equipment and equipment installation.

The current MCA estimate to renovate the BZ disposal facility is $45.4 million. An additional $114.8 million of PAA funding is required for equipment and equipment installation.

While a renovated BZ disposal plant costs the same to construct and costs less to equip, the renovated plant would still require waivers to basic safety criteria to operate. Additionally, the renovated plant costs more for: (1) design, since the TOCDF design cannot be used to reduce the design costs; (2) operations, since the plant has a lower throughput rate; and (3) training, since the renovated plant will be unique and require a different training program. Overall, the life-cycle cost of the renovated plant is $18 million more than a new facility ($480 million for a renovated plant versus $462 million for a new plant).

*Question.* What will happen to the BZ facility now that the BZ weapons are all destroyed?

Answer. We are completing the decontamination and decommissioning of the BZ facility. The facility will be put in "lay away" until the completion of the study on follow-on uses for the chemical disposal facilities. We will then determine if there are additional uses for this plant.

## MILITARY CONSTRUCTION FUNDING

*Question.* The budget includes $76.3 million in military construction funding for the chemical weapon disposal program. As Congress directed, this funding is included in the Military Construction budget. Would the Army prefer to have all funding for this program, including military construction, in one appropriation? Would this not facilitate accounting and program visibility?

Answer. Yes, fully funding the Chemical Demilitarization Program in the Chemical Agents and Munitions, Destruction, Defense account would facilitate improved oversight and management of the entire program. The Army is working with the Office of the Secretary of Defense to facilitate an arrangement that would meet the needs of both the program and the Congress.

## GB-2 155MM BINARY CHEMICAL PROJECTILE

*Question.* Dr. Richardson, the budget includes $74.3 million for the procurement of ——— GB-2 155mm binary chemical projectiles. Last year, $47 million was appropriated for this program, but obligation of the funding was fenced by authorization legislation pending certification from the Secretary of the Army concerning two of the production facilities. The facility to produce the chemical DC, needed for this round, was to be completed, proven out, and ready for full production in January of this year. What is your current estimate and why has it changed?

Answer. The current estimate for completion of the DC facility is 17 July 1990 with prove out completed a month later (17 August 1990). Delays have resulted from a number of things, not the least of which has been adverse weather in the Pine Bluff Arsenal (PBA), AR, area. This, coupled with contractor inefficiencies, materials changes, and actions associated with the co-location of the binary facilities at PBA, has resulted in the delays noted.

*Question.* Dr. Richardson, since the two domestic manufacturers of the chemical TC, needed to produce DC, have refused to sell to the Army, what alternatives are being considered?

Answer. There are several options being investigated. These include on-line production of TC, use of alternate chlorinating agents, and/or procurement from other sources.

*Question.* Dr. Richardson, when will the Army decide what to do about the TC problem and when might TC be available so that the DC plant can be proven out?

Answer. The TC is expected to be available for prove out of the plant in July 1990.

*Question.* Dr. Richardson, what is the status of environmental permits for the DC facility?

Answer. The State of Arkansas air permit for the DC facility is expected to be issued in June 1990. The RCRA permit for burning of RCRA wastes in an incinerator is expected to be issued in February 1991. In the interim, arrangements have been made to have the RCRA waste removed by an Arkansas and EPA licensed waste hauler who will subsequently incinerate the material.

*Question.* Dr. Richardson, once the DC facility is ready for production, how long will it take to eliminate the backlog in this program, which has been funded since 1986?

Answer. The DC facility and the DF facility are capable of producing and filling canisters at a rate which could eliminate the backlog for already produced rounds within 6 months.

*Question.* Dr. Richardson, the DC facility was originally expected to cost $17 million. What is your current estimate and why has it changed?

Answer. The current estimate for the DC facility is $27.0 million in project monies supplemented by $973,000 in MCA dollars, $7.3 million in Engineering Design funds, $1.6 million in co-location mitigation funds for QL and BIGEYE projects, and $2.7 reserved for prove out. Delays due to adverse weather in the Pine Bluff Arsenal (PBA), AR area, contractor inefficiencies, materials changes, and actions associated with the co-location of the binary facilities at PBA have resulted in increased costs.

*Question.* Dr. Richardson, what is the source of funds to pay for the cost overrun?

Answer. Three sources have been used. First, the original allocation was greater than the $17.1 million originally bid. The remainder has been paid from FY 1987 production funds returned, and the only binary production project extant at that time, the M687. This was done, in the latter instances, by reducing the dissemination testing of the M687 and delaying the planned pallet product improvement program.

*Question.* Dr. Richardson, because of serious manufacturing and delivery problems with the canisters for the two chemicals in the

GB-2, authorization legislation last year required the GAO to monitor production and report monthly to Congress. According to the most recent report, GAO concludes that it is questionable whether deliveries of two of the three components will eliminate the production backlog by October 1 of this year. Do you disagree with either GAO's facts or conclusions?

Answer. Yes, we seriously disagree with the March conclusions. In April, the canister manufacturer easily produced at the production backlog breaking rate for all components and the GAO revised its conclusions to state that the manufacturer can succeed in eliminating the backlog by October 1.

*Question.* Dr. Richardson, in discussing the fiscal year 1990 procurement strategy for the containers last year, the Army stated that it was considering several alternatives, all of them competitive. What are your current plans and why have they changed?

Answer. Although we are still considering competitive strategies, the delay in the release of FY 1990 funds may force a revision of that strategy, since the original scenario assumed a sufficient time for tooling up of a competitive contractor.

*Question.* Dr. Richardson, what is the out-year funding profile for the GB-2?

Answer. The Army out-year funding for the GB-2 has not yet been released.

*Question.* Dr. Richardson, since the fiscal year 1990 GB-2 procurement will not be on contract until late in the fiscal year at the earliest, and given the long history of program delays and schedule slippage, why should Congress appropriate additional procurement funding for this program in fiscal year 1991?

Answer. Late award of the contract in FY90 does not negate the requirement for FY91 funds. The level of procurement funded in FY90 and FY91 does not meet the minimum economic buy for a full year production, therefore the additional procurement in FY91 makes business sense.

## BIGEYE CHEMICAL BOMB

*Question.* The budget included a total of $69.9 million for the procurement by the Navy and the Air Force of the BIGEYE binary chemical bomb. This will be the first year of full-scale production, following a third series of operational tests, called OT-IIC. Last year we were told that OT-IIC would begin in February and end in September of this year. What is the current schedule for beginning and completion of OT-IIC?

Answer. The third phase of operational testing (OT-IIC) is scheduled to begin 4 September 1990, with testing to be completed by 25 January 1990.

*Question.* Has a Test and Evaluation Master Plan been approved for the OT-IIC tests? If not, when will it be?

Answer. The Test and Evaluation Master Plan is currently going through the approval cycle. The plan has been reviewed and approved by the Assistant Secretary of the Air Force (ACQ) and the Deputy Under Secretary of the Army (Operations Research). It is awaiting signature by the Director, Operational Test and Evaluation and the Assistant Secretary of the Navy. Final approval will be completed by 30 June 1990.

*Question.* Under current law, no BIGEYE procurement funds may be spent until GAO certifies to Congress that six specific production certification conditions have been met. These conditions have to do with the design and conduct of the tests. What role has GAO played in the formulation of the OT–IIC test plan?

Answer. At the beginning of test planning for OT–IIC testing, GAO was invited to participate in the development of a test plan which would address all criteria necessary for successful testing and subsequent certification. GAO declined to participate in development of the plan, but stated they would review it after it was completed.

*Question.* How likely is it that GAO will make the required certification if they have not participated in the development of the test plan?

Answer. Since the BIGEYE is the first weapon to date requiring GAO certification, the process of certification by GAO is not fully understood. They declined to participate in the development of the Test and Evaluation Master Plan, and stated that they were fully confident the Navy knew how to plan the tests. In light of these events, it is doubtful if the GAO can make an adequate and objective evaluation of the operational testing in order for the required certification.

*Question.* There has been a long-standing disagreement between the Navy and GAO concering the BIGEYE program and the quality of previous BIGEYE tests. In order to resolve these issues, Secretary Cheney and Comptroller General jointly convened a panel of four independent experts. Their report contained the following conclusions, among others:

a. DOD has failed to provide adequate oversight and management of the program.

b. Development issues are major and unresolved.

c. DOD has failed to formulate measures of weapon effectiveness.

d. Additional developmental tests are required but not scheduled.

What is your response to this report?

Answer. First, the panel of four never did prepare a report, and there is no report written by the panel or signed up to by them. We met with the panel for two hours on 30 January 1989 to explain our position. Upon completion of this meeting, there was some sense of agreement from a technical standpoint. Subsequently, a GAO statement was released with their view of the panel's results. It is the Navy's contention that the statement released was not an objective, bipartisan evaluation.

Addressing the specific issues, the NAVAIR BIGEYE management team consists of members from production, reliability, quality, program management, finance, design, and logistics. In addition to these personnel, members from the Air Force, Army and various field activities all provide constant support and attention to this program.

In addition, there are no developmental issues unresolved. The only technical issue or parameter in question is that of reliability of the BIGEYE weapon system. The purpose of OT–IIC testing is to establish that the weapon system is indeed a reliable weapon, and meets all operational reliability requirements.

The Operational Test and Evaluation Force (OPTEVFOR) has developed an extremely detailed test and evaluation matrix in support of the Test and Evaluation Master Plan. The Navy is confident that successful completion of the testing to be performed during OT–IIC will establish that the BIGEYE is an effective and reliable weapon system.

No additional developmental testing is required. CRDEC will begin testing ten chamber rounds at the end of calendar year 1990. These tests will consist of actual functioning of a live round inside a sealed chamber. Several samples of the chemical agent formed after mixing will be taken to measure the toxicity of this agent. Also, the temperature and pressure inside the bomb will be measured periodically during/following mixture of the two chemical components.

*Question.* Given the delay in the start of OT–IIC testing and the performance of the contractor to date, how reasonable is it to expect that you will be able to complete the test, analyze and compile the report and receive all of the necessary production certifications before the end of fiscal year 1991?

Answer. OT–IIC testing is scheduled to begin 4 September 1990 with completion scheduled for 25 January 1991. The final test report will be submitted no later than 90 days subsequent to completion of testing, which equates to 25 April 1991. The Navy is confident that, based on successful completion of OT–IIC testing and submission of the final report as stated above, certification by DOT&E will follow shortly thereafter, due to the very nature of the conduct of the testing. However, the certification time and process by the GAO is yet unknown to the Navy. Because BIGEYE is the first program requiring GAO certification, there is no "yardstick" on which to base an estimate. The Navy is fairly confident that any issues which may come up will be resolved by the end of fiscal year 1991.

*Question.* What is the overall procurement strategy for BIGEYE?

Answer. The Marquardt Company (TMC) is presently the only company capable of producing the weapon within the time frame required. The Army provided funding for TMC to build a facility and the facility is complete. OT–IIC test weapons are being manufactured by TMC on the present contract, along with some Safe Separation Test Vehicles (SSTVs), as well as some inert rounds and chamber rounds. The Navy plans to award TMC a sole source contract in fiscal year 1991 for some full production units and SSTVs. Also, in fiscal year 1991, a second source will be chosen, with qualification to be completed by the end of fiscal year 1992, and production being divided between TMC and the second source during fiscal year 1993. Full completion will begin during fiscal year 1994.

*Question.* Dr. Richardson, two production facilities for BIGEYE are located at Pine Bluff Arsenal in Arkansas. One is to produce the chemical QL and the other is to fill and close the weapon. Last year we were told that these would both be proven out and ready for production by March 1990. What is the current status of these facilities?

Answer. Prove-out of the QL production facility is planned to be completed and production initiated in August 1992. Cost growth experienced on the acquisition contract has resulted in a restructuring of the acquisition approach. In addition, the process to obtain an environmental permit to handle the waste from the facility has become more complex and time consuming.

Prove-out of the BIGEYE fill/close facility will be completed and the facility available for operation in August 1990. In support of the BIGEYE program, the facility will fill simulant bombs. The shipment of these bombs from the Marquardt Company has been delayed. To avoid the expense of decontaminating the equipment after QL is used for prove-out, it was decided to schedule the prove-out after completion of simulant filling of bombs in late July. Additionally, the environmental air permit is not yet complete.

*Question.* Last year, we appropriated $6.9 million for procurement of 250 safe separation test vehicles for additional Air Force testing. Why are you now only able to procure 187 units instead of the 250 units budgeted?

Answer. Until the proposal is received from the contractor, the quantity of safe separation test vehicles (SSTVs) is based on a computer model generated by our cost analysis group. As this model is being refined, the approximate quantities that we can procure will fluctuate. This accounts for the reduction in quantity from 250 to 187. The final quantity will not be determined until the contract is negotiated.

*Question.* What is the status of the SSTV procurement? Provide contract milestones and delivery schedule for the record.

Answer. The SSTV Request For Proposal (RFP) is currently being prepared for submission to the Contractor. Contract award is expected in November 1990. SSTV hardware deliveries would begin approximately fifteen months after the contract award.

## BINARY WARHEAD FOR MLRS

*Question.* The Army is developing a binary warhead for the Multiple Launch Rocket System (MLRS). A total of 67 dissemination and scored flight performance flight tests were to have been completed by January of this year. What were the results of those tests?

Answer. The results are as follows: Scored Performance Testing at White Sands Missile Range (WSMR) Fifty-four of 54 scored performance flights have been completed. During this testing, five flight tests have been scored failures. One failure was caused by the rocket impacting the ground prior to fuze turn-on. The other failures have been attributed to failure of the explosive separation system to function. Since design changes were made to the explosive system, 32 flight tests have been successfully conducted. Dissemination Testing at Dugway Proving Ground (DPG): AT DPG a total of 13 dissemination rockets were flown from Jun-Nov 89. All but one rocket successfully functioned. The one failure was due to the installation of improper hardware in the rocket (wrong umbilical clamphead).

*Question*. Production qualification flight tests, involving 48 rockets, were scheduled to take place between December 1990 and June 1991. Is this still the schedule?

Answer. Future Testing: Verification Testing—Six instrumented rockets will be flown at WSMR between Aug-Oct 90. These rockets will be produced on the Camden pilot line. PQT testing of the remaining 42 will be conducted from Jun-Oct 91. Testing cannot begin until injectors are available from the LAP facility in PBA (May 91). Delay from Dec 90 to Jun 91 was due to revised acquisition strategy for a preproduction and follow on full production LAP facility.

*Question*. Is initial production funding still programmed for fiscal year 1992? If so, how much is in the current 1992 budget for initial binary MLRS procurement?

Answwer. The FY 1992 funding has not yet been released.

*Question*. For the record, provide the current program milestones for Binary MLRS.

Answer.

XM450 Fuze Eng. Eval. Flight Test I (complete)—Jan. 1989-Aug. 1989.

Dissemination Flight Testing (complete)—June 89-Nov. 1989.

Scored Performance Flight Testing (complete)—May 89-May 1990.

Verification Flight Testing—Sept. 90-Oct. 1990.

XM450 Fuze Engr. Eval. Flight Test II—July 90-Nov. 1990.

Initial Operational Test and Evaluation—July 91-Oct. 1991.

Production Qualification Test—June 91-Nov. 1991.

Production Readiness Review—Sept. 91.

Milestone III—Mar. 92.

First Unit to Depot—Mar. 94.

*Question*. For the record, provide the technical and performance requirements for binary MLRS and identify what has been demonstrated to date.

Answer. The major technical and performance requirements for the Binary MLRS fall under three categories: ability of the MLRS-BCW to survive extremes in storage, transportation and handling (durability); performance of the MLRS-BCW during flight (accuracy, reliability, dissemination); and the Binary Chemical agent system performance (dissemination mixing and yield quantities). Testing completed to date during Full Scale Development (FSD) has successfully demonstrated the MLRS-BCW's technical and performance requirements with no major technical problem. Planned testing during the second half of FSD will provide final demonstration of system performance.

Highlights of testing completed during FSD are:

22 fuze reliability flight tests completed at Tonopah Test Range, NV.

13 dissemination flight tests completed at Dugway Proving Ground, UT.

54 scored performance flight tests completed at White Sands Missile Range (WSMR), NM

20 prototype reactor toxic chamber tests (agent mixing and yield) completed.

Operational (durability) testing completed or ongoing includes rail impact testing, transportability testing, hazard classification testing, extreme climatic conditioning (environmental), and long term storage testing.

Tests remaining during FSD:

24 additional fuze reliability tests to be conducted at Tonopah Test Range, NV, during FY 1990.

48 PQT tests scheduled at WSMR, NM, during FY 1991.

10 warhead reactor toxic chamber tests (agent mixing and yield) scheduled during FY 1990.

*Question.* For the record, provide the complete R&D and procurement profile for this program, including quantities. Separately identify production equipment and facility costs.

Answer.

MLRS–BCW FUNDING PROFILE (UP TO BUDGET YEAR)

[Dollars in millions]

| | Sunk | Fiscal year— | |
|---|---|---|---|
| | | 1990 | 1991 |
| RDTE 6.3 | $92.6 | | |
| RDTE 6.4 | 40.8 | $31.0 | $27.8 |
| MCA | 4.5 | | |

$4.5 million MCA funds are to construct the Injector Fill/Close Facility at Pine Bluff Arsenal

$12 million of FY 1990/FY 1991 RDTE Funds used/planned to equip a preproduction Injector Fill/Close Facility at Pine Bluff Arsenal.

## Army Chemical Defense Equipment

*Question.* The Committee has touched on the issue of protective masks for the Army in a previous hearing, but to complete the record on this hearing we will address this issue today. Last year the Committee provided $57 million in procurement funding to support the acquisition of over 400,000 M40/M42 masks from two separate vendors. The fiscal year 1991 budget request before the Committee is for $5 million to acquire another 28,700 masks.

What accounts for the dramatic drop in the request for this program?

Answer. Scott Aviation's failure to meet its contractual obligations and deliver waterline drawings required by the follow-on producers to machine molds for mask production resulted in significant delays in the Mine Safety Appliances (MSA) and ILC Dover delivery schedules. As a result, the funding programmed for FY91 could not have been obligated and disbursed in a timely fashion and the Army reduced its budget request to $5 million. The funds appropriated by the Congress in FY90 will sustain MSA and ILC production through FY91. The FY91 budget request is required for in-house support ($2 million) and cost bearing contract modifications ($3 million) that must be paid with current year dollars. The FY91 budget request will not be used to procure 28,700 masks.

What is the total inventory objective for the M40/M42 masks for the active Army and the Reserves?

The total inventory objective is: M40—1,560,533 and M42—201,554.

What is the anticipated longevity of these masks?

Answer. The anticipated longevity of the masks is 10 years.

*Question.* At what monthly production rate are both contractors facilitized? Provide for the record the maximum economic, minimum economic and minimum sustaining production rates for both vendors.

Answer. The production rates are as follows:

Contractor facilitized—20,000 masks per month.

Maximum economic—20,000 masks per month per contractor.

Minimum economic—15,000 masks per month per contractor.

Minimum sustaining—5,000 masks per month per contractor.

*Question.* Last year the Committee added funds to develop a drinking capability for the M40/M42 masks.

What is the status of the program?

Are the available funds sufficient to finish this development effort?

Answer. The Mask Drinking System (NDI) is currently undergoing testing, to include live agent testing. There are sufficient funds available to complete the testing efforts.

*Question.* NBCRS (Nuclear, Biological Chemical Reconnaissance System) is an armored carrier capable of performing nuclear biological and chemical reconnaissance to assess the level of contamination on the battlefield. $36.9 million is requested for 15 systems in fiscal year 1991.

A. What is the status of the NDI (non-developmental item) competition for this vehicle?

Answer. A head-to-head competition of two NDI nuclear, biological and chemical reconnaissance systems (NBCRS) was completed in February 1990. The competition was won by General Dynamics Land Systems (GDLS) of Warren, Michigan, who had teamed on a sub-contracting basis, with the German vehicle manufacturing firm, Thyssen Henschel of Kassel, West Germany. Army awarded a three year firm fixed price contract to obtain 48 of the NDI systems, service, technical manuals, new equipment training, and test, measurement, and diagnostic equipment to GDLS in March 1990.

B. Are these systems to be procured only for Army units which remain deployed in Europe?

Answer. At this time, 6 NBCRS will be sent to the U.S. Army Chemical School at Ft. McClellan, Alabama, for use as a training base and the remainder were planned to go to Europe. However, the rapidly changing structure of U.S. forces and the proven threat of chemical warfare in the third world countries is causing the Army to reevaluate the deployment of these remaining systems to better fit Army requirements.

C. What is the inventory objective for the system?

Answer. The current Army Acquisition Objective (AAO) is 548 NBCRS.

D. How many will have been procured, in total, assuming the Congress approves the fiscal year 1991 request?

Answer. With the requested FY 1991 OPA-3 funds added to current FY90 funds, the Army will have procured a total of 23 NBCRS.

*Question.* Last year, the Army terminated a contract with Scott Aviation for the production of both the M43 aviation gas mask and the M40/42 ground support gas masks. The Committee is advised that a settlement has been reached between Scott Aviation and the Army with regard to the contract for the M43 mask.

Is that accurate?

Answer. Yes, except that Scott Aviation had two separate contracts; one for production of M40/42 Masks and the other for production of M43 Masks. The contract for M40/42 Masks was terminated for default. A negotiated settlement was reached with Scott Aviation to end the contract for M43 Masks.

*Question.* What is the status of a new contract for the M43 mask?

Answer. After a thorough review of past production experience, extensive testing, evaluation of our experience with M43 Masks made by ILC Dover in 1985, and an in-depth analysis of the difficulties encountered by Scott Aviation, it was determined that the M43 meets the Army's requirements and is a producible mask. Due to the urgency of fielding M43 Masks to Apache helicopter battalions, all actions required to award a new production contract are being expedited to experienced mask manufacturers. The two firms selected to compete are Mine Safety Appliances and ILC Dover. ILC developed the M43 Mask and has produced M43 Masks in the past. Mine Safety has a long history of Mask production and has delivered over four million masks to the Army. Both firms are currently preparing their proposals and contract award is scheduled for June 90 to one of the competitors.

*Question.* Will the new contractor be using the same material and design as the terminated contract?

Answer. No. The new contractor will be using the same design but a material which has significantly superior ozone resistance over that used by Scott Aviation to produce masks. This material includes Santoflex 13, an antiozonant, which increases the material's ability to resist ozone attack.

There have been allegations that when the M43 gas mask is manufactured to current Army designs, it develops cracks in the rubber facepiece when subjected to ozone.

*Question.* Is there substance to that allegation?

Answer. No. Some masks made by Scott Aviation in the Los Angeles area in the summer did exhibit cracking. This was shown to have been caused by a combination of the high ambient ozone concentrations in Los Angeles, the lack of an antiozonant in the rubber material, and Scott Aviation's in-house processing methods.

*Question.* If so, what are the Army's plans to rectify this situation?

Answer. The new contract for M43 Masks specifies that the rubber compound contain Santoflex 13, dictates processing steps which affect the ozone resistance of the rubber, and prohibits manufacture of the mask in an area with high ambient ozone concentrations.

*Question.* What assurances can you give the Committee that the M43 gas masks to be produced will not be subject to cracking when subjected to ozone?

Answer. Masks produced by ILC Dover five years ago, in a low ozone environment, using the same material as Scott Aviation, show no sign of the ozone degradation experienced by the Scott masks. Also, ozone tests conducted in-house show that the addition of an antiozonant will prevent the occurrence of cracking in masks produced by the next manufacturer. In addition, an ongoing independent test program is examining the ozone resistance of the material specified in the new contract along with other candidate materials to verify our in-house assessment. In the unlikely event that these tests indicate that the new material is inadequate, the production contract will be modified to use the material shown to be best.

*Question.* What is the status of the Army entering into a new contract after the termination of the M40/M42 ground support troop mask?

Answer. The Army is not entering into any new contracts for production of the M40/M42 masks. The Government currently has two ongoing contracts for masks with MSA and ILC Dover who will become mobilization base producers. These contracts were awarded in September 1988, well prior to the Scott termination. A reprocurement package for the M42 masks terminated from the Scott contract is the only mask procurement action currently in the servicing procurement activity. It is intended to reprocure these masks and limit competition to MSA and ILC Dover who are currently under contract for production of the item. These masks are being competed between the mobilization base producers. The masks will be added onto the current contracts with MSA and ILC Dover when First Article Acceptance has been completed. MSA is scheduled to commence deliveries on 30 September 90. ILC is scheduled to begin deliveries on 30 May 91.

*Question.* When do you anticipate that the new manufacturer will begin production of the M40/M42 gas mask?

Answer. There is no new manufacturer of the M40/M42 mask.

*Question.* How lengthy of a delay will have occurred in the time table that these masks will be available to the troops as compared to the original time table for their deployment?

Answer. As a result of Scott Aviation's failure to meet it's contractual delivery schedule for masks and waterline drawings and the subsequent delay of the follow-on producer's schedules, the M40/M42 mask will not be available to troop units until 3QFY91, three years later than the original goal of June 1988.

*Question.* Provide for the record the status of unobligated funds for the Army's gas mask program.

Answer. The status of unobligated funds is as follows:

| | April 30, 1990 | Comment |
|---|---|---|
| Fiscal year: | | |
| 1986 | $17,551,311 | Deobligated after termination of Scott M40/M42 contract for default. Will be used to reprocure M42 mask as described above. |
| 1988 | 382,634 | Pre-production Engineering effort on each contractor, ECP's and in-house support. |

| | April 30, 1990 | Comment |
|---|---|---|
| 1989 | 802,109 | Upgrade of instrumentation for Production, Testing, Engineering Study Proposals on hood material. |
| 1990 | 28,817,790 | 150 percent option on one of the mobilization base contracts, C2 canisters and delayed claims from the mobilization base producers. |

M43–FY90 $7.6 million–Contract scheduled for award in June 90.

## AIR FORCE CHEMICAL/BIOLOGICAL DEFENSE PROGRAM

*Question.* $43.3 million is requested for the Air Force's Chemical/Biological Defense program. This is a decline of $12 million from the current fiscal year and $40 million from the fiscal year 1989 level. For a number of years the Survivable Collective Protection Shelter (SCPS) program has been a central part of the Air Force Chemical Defense program. No funds are requested for fiscal year 1991 for this program and the Air Force is recommending reprogramming funds out of the program. What was the original program objective in terms of the number of SCPS shelters the Air Force intended to build?

Answer. The original inventory objective, based on a gross estimate of the number of people to be protected, was 1700 SCPS. In 1987 the Air Force reduced the objective to 1325 SCPS due to land constraints and a reduction in the number of people requiring collective protection. Recently, the Air Force reduced its objective to 164 SCPS. This is due to the changing threat, force structure changes, increasing emphasis on flexibility of tactical forces, and cost considerations.

*Question.* How many have been constructed?

Answer. The Air Force has installed 121 SCPS at bases in West Germany and the Netherlands.

*Question.* How many more do you intend to construct?

Answer. The Air Force is installing 10 SCPS in Korea and plans to install 22 in the United Kingdom and 11 in Turkey.

*Question.* Why are no funds requested in fiscal year 1991?

Answer. The Air Force requested no fiscal year 1991 funds because it can meet its requirement for SCPS using prior-year funds.

*Question.* Provide for the record the amount of funds presently "in the pipeline" for the SCPS program, including any funds which may have been transferred to our allies for the construction of SCPS shelters.

Answer. Currently, $112.5 million of fiscal year 1988 and 1989 appropriated funds are "in the pipeline" for SCPS.

*Question.* Funds are requested in fiscal year 1991 for "Transportable Collective Protection System."

What is the projected service life of these transportable systems?

Answer. Projected service life for the transportable systems is five years and projected shelf life is ten years.

*Question.* What are the advantages and shortcomings of the transportable systems as opposed to the previously procured permanent SCPS (Survivable Collective Protection Shelter) Systems?

Answer. Advantages of the Transportable Collective Protection System (TCPS) include greater flexibility of use and lower cost.

TCPS is air transportable and adds chemical protection to rooms in permanent facilities or to deployable tent systems. The total cost of seven TCPS, which equal one SCPS in capacity, is one fourth the cost of one SCPS. Primary shortcoming of the TCPS is the lack of inherent conventional blast protection. The TCPS must rely on the blast protection provided by the structure in which it is installed or be adequately dispersed from primary target areas.

*Question.* Reprogramming FY 90-16 is pending before the Subcommittee. It recommends transferring $4 million from the Chemical/Biological defense program due to "organizational and force structure changes in PACAF."

What are these "organizational and force structure changes?"

Answer. The reprogramming request erroneously associated the $4 million with PACAF SCPS. Actually the funds were for USAFE; there were no fiscal year 1990 funds programmed for PACAF. Anticipated organizational and force structure changes led USAFE to reduce its SCPS requirement and opt for a more flexible approach to chemical defense.

*Question.* What are the inventory objectives for Survivable Collective Protection Shelters in South Korea?

Answer. The inventory objective for SCPS in South Korea is ten SCPS at Osan Air Base.

*Question.* To what extent do the North Koreans have chemical/biological weapons?

Answer. ———.

*Question.* As the United States begins to consolidate its base structure overseas, wouldn't it make sense to optimize the survivability of those bases which remain through the construction of Survivable Collective Protection Shelters?

Answer. Because of the considerable uncertainties relating to future basing, force structure, chemical threat, and chemical treaties, the Air Force believes it is prudent to provide more flexibility in its chemical collective protection with a mix of survivable and transportable systems. Through dispersal and expedient hardening, the Air Force intends to achieve an acceptable level of blast protection for transportable systems at a significantly lower cost.

*Question.* The fiscal year 1991 budget request for ground crew masks is down considerably from previous years.

Provide for the record the per unit costs for these masks compared to fiscal years 1989 and 1990, and the inventory objective for the masks.

Answer. The unit cost of the masks for fiscal year 1991 is the same as it is for fiscal years 1989 and 1990, $164.66 per mask. The constant unit price results from a multiyear contract for the masks. The inventory objective for the masks is 470,000.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, APRIL 5, 1990.

## MISSILE AND OTHER PROCUREMENT, AIR FORCE

### WITNESSES

**HON. JOHN J. WELCH, JR., ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)**

**MAJOR GENERAL EDWARD R. BRACKEN, DIRECTOR OF LOGISTICS AND PLANS**

**MAJOR GENERAL THOMAS R. FERGUSON, JR., PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)**

### INTRODUCTION

Mr. MURTHA. The Committee will come to order. Today we will hear testimony supporting the Administration's request for missile procurement and other procurement, Air Force. Our witnesses are the Honorable John. J. Welch, Assistant Secretary of the Air Force for Acquisition, and Major General Edward R. Bracken, the Director of Logistics, Plans and Programs.

We will hear first from Secretary Welch. Would you like to put your statement in the record, unless you have something to highlight, and we will get right down to the questions because there are some programs I am very interested in asking questions about.

### SUMMARY STATEMENT OF MR. WELCH

Mr. WELCH. Fine, Mr. Chairman.

We have tried to recognize in what we have submitted to you this year a changed environment and we will see it continue to change and frankly with less resources available to us, I think we will see change as we go through this year.

We are ready for your questions.

[The statements of Mr. Welch and General Bracken follow:]

# STATEMENT OF HONORABLE JOHN J. WELCH, JR.

Mr. Chairman and Members of the Committee: I am pleased to appear before you to review the Air Force's proposed missile procurement activities for Fiscal Year 1991 and 1992.

The program outlined in this report is based on the United States Air Force Acquisition Program which is designed to provide the systems and equipment needed by our Aerospace forces to implement our basic military strategy of deterrence in the most efficient manner possible. To do this, we must rely as much as possible on our two greatest strengths: well motivated, high quality people and technological innovation. Our priorities for this budget are:

- Efficient acquisition
- Strategic modernization
- Readiness and sustainability

This program has been formulated against a background of political and technological change of unprecedented magnitude. Soviet statements and proposals show remarkable reversals from past Soviet words and actions. The immediate likelihood of a sudden Soviet attack in Europe seems to be declining as the Soviet Union focuses on internal problems and Eastern Europe evolves toward democracy. We expect the Soviet Union to remain a major power in Europe and Asia for the foreseeable future. The USSR will remain the only power capable of threatening the very existence of the US. Although we've seen many Soviet declarations of intent to cut its military, actual force structure changes have not been dramatic. The Soviet Union still possesses formidable military capability. Intentions can change overnight; capabilities do not.

In addition to the Soviet concern, there are new, formidable threats on the horizon. The US is facing a world in which high technology military power has come into the hands of a widening circle of nations, many of which maintain arsenals of sophisticated weapons. This new situation manifests itself in regional conflicts that can threaten the security and economic interests of the US and our allies. These regional conflicts rage all over the world in places like the Pacific Rim, South and Southwest Asia, the Middle East, Africa, Latin America, and the Caribbean. Consequently, the US must maintain forces that are highly trained, ready, and mobile.

The Air Force budget was painstakingly crafted to keep our aerospace forces on a stable, prudent course for ensuring US security, balancing current readiness and sustainability with future investment. The programs were chosen carefully to continue the modernization of existing force structure while using economical production rates and multi-year contracting to replace older systems. In our deliberations we sought a balance among required military capability, program priorities, and budget realities. Our Air Force missile and other procurement programs support the budget priorities described above and are key to maintaining a modern deterrent force.

STRATEGIC MISSILES

The Air Force strategic modernization program is focused on improving the land-based ICBM and manned bomber legs of the Triad.

The budget includes the development and deployment of the Rail Garrison basing mode for the Peacekeeper missile and development and deployment of a Small ICBM. The Peacekeeper is the most successful missile program in US history. Rebasing the Peacekeeper on trains and developing and deploying a Small ICBM that can be transported over highways will provide critically needed survivability and flexibility for our ICBM force. These ICBMs are highly reliable and provide a prompt and accurate response against hardened military targets. Although the details of how we should proceed to modernize our ICBMs is now under review, there is consensus that ICBM mobility is required. The Soviet Union has already come to that conclusion and has deployed two mobile ICBMs, one on rail, the other a truck mobile system.

The Administration's present approach for ICBM modernization calls for a two phased effort. In the near term, 50 Peacekeeper silo based missiles will be rebased on railroad cars. Concurrently, we are continuing with the development and deployment of the Small ICBM. Clearly both systems have their supporters and the Administration will be recommending a program that meets US needs in terms of strategy, deterrence, arms control, cost, and support.

TACTICAL MISSILES

The Soviets continue to field and develop a large, well-equipped conventional force. We must remain capable of countering any conventional threat in a decisive, timely manner. To maximize the capabilities of our tactical forces, a variety of new munitions are being developed and procured. These new munitions will arm our forces with several new and improved capabilities in air-to-air and air-to-surface roles. AMRAAM is a high performance missile which will reduce vulnerability to our aircraft while attacking multiple enemy aircraft. The AMRAAM doubles the ability of the F-15 to destroy its targets and makes the F-16 six times more effective. Other air-launched tactical munitions include the Maverick air-to-surface missile, Tacit Rainbow emitter attack missile, HAVE NAP medium range precision guided standoff conventional missile, and HARM air-to-surface anti-radiation missile. Our tactical missiles increase combat effectiveness and aircrew survivability.

SPACE OPERATIONS

The DoD will continue to rely on space-based systems for communications, surveillance, warning, weather data, and arms control monitoring in both peace and conflict. Consistent with national and DoD space policies, we will continue efforts toward assured mission capability, balanced against operational requirements and fiscal priorities. The Air Force is performing its role in conducting DoD space activities by seeking enhanced space-launch efficiency in an effort to reduce costs, improve operations, and conduct more launches with shorter turn around times.

Our successful launch recovery program has seen the return to flight status of each class of vehicle that was operating at the time of the Challenger disaster. We have also had the first flight of a new generation of expendable systems, including the Delta II, Titan II and the heavy lifter, Titan IV. In our satellite systems, the next blocks of the Defense Support Program and the Defense Meteorological Satellite Program will continue to provide warning and weather data. Likewise, enhanced capabilities for our forces will be achieved with new capabilities such as the Global Positioning System of navigational satellites. Modernization of our strategic communications will be pursued through the survivable MILSTAR system. Our space systems will continue to be a keystone for support of both tactical and strategic missions.

The activities I've presented here today are part of a carefully balanced program. Sustaining efficient production and economical production rates can maintain the balance if stable funding backs it. We are committed to support these activities, and ask for your support.

Thank you, Mr. Chairman, for the opportunity to make this statement. We will be happy to answer your questions.

## STATEMENT OF MAJOR GENERAL EDWARD R. BRACKEN

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

It is a pleasure to once again appear before this Committee to provide a summary of the FY 1991 Amended Budget Request. I have had the opportunity to present the Other Procurement, Air Force (OPAF) appropriation budget request for the past three years and look forward to working with you again.

The request I present today is significantly different in content and size than that the Committee saw in the April 1989 Amended President's Budget. As the Committee is aware, a large portion of this account, over 65 percent in FY 1991, is dealt with separately and consequently skews the value of the equipment request. For example, when viewing the entire appropriation, there is a three percent negative growth but when you just consider the equipment programs, there is a 16 percent negative growth. I believe it is important to recognize this difference, and I ask that the Committee keep this perspective as you deliberate the appropriation process. I would also like to highlight some policy type changes that influence the FY 1991 request. First is the Defense Management Review (DMR) initiative to stock fund replenishment spares which reduced our FY 1991 request $102.3 million. Other changes include the transfer of $24.7 million for Special Operations Forces (SOF) unique items directly to the Defense Agency budget; transfer of $25.1 million First Destination Transportation funding from O&M into Other Procurement; and the movement of $210.5 million for the Over-the-Horizon Backscatter (OTH-B) Radar into the Counter Narcotics program. The request also continues the Congressional decision to fund the Asset Capitalization Program in this account rather than O&M for which we request $75.3 million. The net effect of these actions is a $237.1 million reduction.

The OPAF appropriation consists of four separate budget programs: Munitions and Associated Equipment; Vehicular Equipment; Electronics and Telecommunications Equipment; and Other Base Maintenance and Support Equipment. While most of the items procured in this account are not glamorous or "headline" items, they are all essential and provide our forces and bases the critical infrastructure to conduct and sustain the daily operations. It is important that items procured in this appropriation remain in balance with those major items procured in other appropriations so as not to create an imbalance of support to combat systems.

Aside from the changes I outlined above, this year clearly differs from the past. The hallmark of the defense environment in the 1990s will be "change". As we have witnessed, and continue to witness, monumental changes are sweeping the globe with Eastern Europe the principal arena. These changes are obviously impacting the military, and the Air Force is responding to the realities of this change. This submission represents those budget programs which support what I would term the core of the Air Force -- those items which we need to operate and sustain the forces under any scenario. We have prepared a budget request anticipating, given available guidance, the basic needs of today's Air Force as well as the likelihood of a downsized force given the changing threat and fiscal constraints. We recognize our force structure may be reduced, with subsequent reductions in requirements for many items within the OPAF account. We would be remiss, however, not to prepare a planned and orderly program to maintain current levels of readiness to support today's force structure. The funds we are seeking will ensure that an even leaner Air Force will have the best infrastructure possible with the dollars available. Our goal remains, as it has always been, to equip the total force - Active, Guard and Reserve.

I would now like to give the Committee an overview of FY 1991 requested funding for OPAF:

|  | FY 1991 AMENDED OPAF BUDGET |  |  |
|---|---|---|---|
|  | FY 1989 | FY 1990 | FY 1991 |
| Munitions & Assoc Eq | 587.0 | 392.8 | 428.0 |
| Vehicular Eq | 270.6 | 212.3 | 176.7 |
| Electronics & Telecommunications Eq | 1,965.3 | 2,077.4 | 1,651.5 |
| Other Base Maintenance & Support Eq* | 5,370.0 | 5,572.2 | 6,051.2 |
| TOTAL | 8,192.9 | 8,254.7 | 8,307.4 |

*Includes Special Projects

Before going into a more detailed description of each of the programs, let me quickly cover a few highlights in each budget activity.

Although our FY 1991 Munitions request reflects some growth, it more significantly reflects a change in focus from sustainability to readiness. For the first time in a decade, training items represent a larger share of the request than war reserve material. We believe this to be the more prudent use of scarce fiscal resources -- that is to maintain a high state of readiness while we reexamine the threat and wartime requirement. Changes most notable from the FY 1990 request are the elimination of the Combined Effects Munition (CEM), increased BIGEYE procurement which we believe is necessary until, as the President stated, we can ban all chemical weapons in a verifiable manner, and increased GBU-15 funding for the improved data link and integration kits to incorporate the improved 2000 lb bomb (I-2000).

The Vehicular Equipment program again decreases and represents roughly a 19 percent negative real growth from FY 1990. While we continue to allocate limited resources against the commands highest stated needs, our backlog continues to grow. Obviously some relief will occur as the force comes down and bases are closed. The programmed buys are essentially the same as FY 1990 except no R-11 Refueler funding is requested based on production leadtimes.

Moving next to the Electronics and Telecommunications budget activity you will also note a sizeable reduction -- some $426 million. However, the majority of this change is related to the movement of replenishment spares and the Over-the-Horizon Backscatter Radar funding I mentioned earlier. For the most part, the request represents a continuation of on-going modernization and replacement programs. One notable exception to that is no funds are requested for the North Warning System which was funded at $182.6 million in FY 1990.

The final budget activity, Other Base Maintenance and Support, decreases from $522 million in FY 1990 to $508 million in FY 1991 when Special Projects are exempted. This decrease primarily stems from reduced generator and Survivable Collective Protection System requirements and overall affordability constraints. These reductions are partially offset by the addition of First Destination Transportation funding.

Mr. Chairman, it is the intent of these opening remarks to show that the Air Force recognizes the significance of the geo-political, military, and fiscal realities facing this nation. Our goal is to ensure a modern force ready to meet any threat. We believe this OPAF request reflects a sound approach to the realities of today's rapidly changing world while ensuring continued support to our core systems vital to the Air Force mission. As the world situation evolves, we must continue to posture ourselves to provide the best communications support, combat and flightline support, munitions, and myriad of base and personal equipment essential to mission requirements.

This concludes my general comments. I would now like to go into a more detailed discussion of each of the four budget programs.

## MUNITIONS & ASSOCIATED EQUIPMENT

This budget program procures all conventional munitions (except guided missiles) and associated equipment to support both Air Force and reserve component requirements. Our FY 1991 request totals $428 million, an increase of $35 million over FY 1990.

The program contains numerous items which range from rockets to cartridges for both aircraft and individual weapons to bombs and fuzes. The cost of these items ranges from a few cents, for 5.56mm ball ammunition to thousands of dollars for a weapon such as BIGEYE. Most of the items are managed by the Air Force Logistics Command and are procured by the Army as part of their responsibilities under the provisions of the Single Manager for Conventional Ammunition (SMCA) charter. As the SMCA, the Army establishes prices which the Services' budget for through the Conventional Ammunition Working Capital Fund (CAWCF).

As I mentioned, the focus this year is on readiness not sustainability. Fifty-eight percent of the budget request is dedicated to procurement of training munitions as opposed to 44 percent in FY 1990 and 33 percent in FY 1989. The remaining 42 percent of the request is basically additive war reserve stocks. It is important to note that of this 42 percent, three items constitute two-thirds of the funds requested. These are: BIGEYE, $57.8 million; GBU-15, $28.4 million; and the FMU-139 fuze, $33.4 million. Despite reduced war reserve funding, a modest increment of sustainability is achieved. Affordability, the need to reexamine requirements in view of a changing world political situation, development delays and overall priorities were key considerations in developing the FY 1991 request.

As I mentioned, the major segment of the program is training munitions. These munitions support peacetime training of aircrews and various ground defense personnel such as Security Police, Explosive Ordnance Disposal specialists, Combat Controllers, and Special Operations Forces. The items in this area provide initial training as well as upgrading and maintaining the proficiency of personnel assigned to various positions who require a high level of combat readiness.

Readiness is a significant output of procuring training munitions. Having personnel who are ready to engage enemy forces and effectively employ weapons in the first few days of combat when hostile action is its most intense is a critical capability and it comes from having personnel not merely familiar with employing these weapons but having a high level of competence in employing them.

Another value to procuring training munitions is that as funding for war reserve munitions declines, training munitions procurement becomes the mechanism by which we maintain a viable and warm production base. Our request enables us to meet a substantial portion of our aircrew and ground combat personnel training programs.

I would now like to highlight the variety of items within the Munitions and Associated Equipment program.

## Rockets & Launchers

The funding for this category is primarily for 2.75 inch rockets, specifically $20.3 million for motors and white phosphorous warheads. Although the category includes launchers, none are being procured. The other $6.3 million is required to procure a number of items each with a procurement value of less than $2 million.

## Cartridges

Although several different types of cartridges are requested, the more prominent ones are for small arms, aircraft cannon, and stores ejection. Our request is $30.0 million greater than the FY 1990 program and represents the largest growth of all the categories in this year's request.

### Small Arms Ammunition

The primary small arms ammunition being procured is 5.56mm ammunition for M-16 rifles and the Squad Automatic Weapon (SAW). M-16 ammunition requirements are increasing for two reasons. First, the .22 caliber rounds used with a special adapter are no longer cost-effective due to reliability and maintainability problems. The second and more significant reason is the Chief of Staff has instituted a new arming policy for both the active and reserve component forces. This new policy stipulates that personnel who may be required in the time of war to serve in an air base defense role, must qualify or familiarize annually with the M-16 rifle. Increased procurement of war reserve assets for the SAW is requested as well as blank 5.56mm ammunition that will afford our personnel more realistic training.

### Aircraft Cannon Ammunition

The 20mm and 30mm aircraft cannon ammunition continue to be the most significant procurements requiring $45.4 million and $46.6 million respectively. Included is $6.9 million for 20mm combat that can be used for training and war reserve purposes. As an example, we are procuring 20mm M14 linked ammunition for the Special Operations Forces (SOF) AC-130 gunships. The SOF uses this round for both training and war reserve.

The most substantial growth within this category is the 20mm training ammunition which is used by all fighter aircraft except the A-10. Increased emphasis has been afforded this round as our force structure contains larger numbers of F-15s and F-16s and our operational units' stated requirements exceed inventory levels.

Regarding 30mm training ammunition, our requested quantity continues to decline as we place a higher priority on 20mm ammunition due to planned phase out of A-10s. Unit costs exclusive of the CAWCF surcharges will remain relatively stable as FY 198 contract options are exercised.

### Stores Ejection Cartridges

The last major cartridge procurement is stores ejection cartridges, also known as the 3000 foot-pounds cartridge, which ensure the safe separation of items, such as pylons and bomb racks, from the aircraft. Excessive administrative lead time negated procurement of this item in FY 1990; however, the problem has been resolved. Our intent is to procure the CCU-107 cartridge, which is an improvement over the older ARD 863-1. Since these 3000 foot-pound cartridges are interchangeable, either will meet user requirements.

## Bombs

In the past this category has been an area of significant investment, but this is less true in the FY 1991 request. Although it remains the highest dollar value category, it has decreased $9.5 million from FY 1990.

### Practice Bombs

Training program increases are the BDU-50 and the MK-84 empty programs. We have experienced training shortfalls in both of these heavyweight training bombs, though the problem has been more acute with the BDU-50. Last year, the Congress was generous enough to appropriate $8.5 million to assist us with our BDU-50 needs. Regarding the MK-84 empty, we did not request this item last year because of the large number of remaining MK-84 high explosive and empty bombs that were on contract from prior years. These deliveries are coming to an end and this practice bomb is a key element in retaining a warm production base for the MK-84 bomb.

### Bombs and Related Items for War Reserve

Another major procurement area is the two GBU-15 related projects: the Improved Data Link and the Integration Kit to mate a GBU-15 to the Improved 2000 (I-2000) pound hard target bomb. The Improved Data Link is scheduled to enter production in FY 1991. This is a very important program as it allows the GBU-15 to operate effectively in a dense countermeasure environment by making it less susceptible to jamming. FY 1991 will mark the second year of funding for the I-2000 integration kit. This kit, consisting of metal parts to adapt the improved payload, provides the Tactical Air Forces with an increased standoff capability against hardened vertical targets.

We plan to commence production of the BIGEYE chemical weapon in FY 1991 if it successfully completes the additional testing mandated by the Congress. In the interim, we are complying with Congressional direction to maintain program continuity. We expect the required testing and validation to be completed by the end of 1990.

Another major procurement being requested in FY 1991 is the BSU-49 Inflatable Retarder fin which is used with the MK-82 bomb. Our reason for increasing the buy quantity substantially is to ensure that adequate fins are available for training purposes and to replenish war reserve stocks which have been partially depleted to a degree by training usage.

### Combined Effects Munitions (CEM)

The program that is noticeably absent from the FY 1991 request is the CEM which has been in production since FY 1983. As you are probably aware, the program will be terminated effective with the FY 1990 procurement. There are a number of factors that contributed to the decision to terminate the program. The plant explosion in July 1989 definitely had an impact on the FY 1991 procurement. There was concern within the Department of Defense that the production backlog resulting from the explosion and the time necessary to reactivate the line would jeopardize FY 1991 funding.

As a result of the FY 1991 decision, we began to reexamine the program. The changes in force structure and the changing world political situation led us to the belief that there would be sufficient assets on hand when FY 1990 and prior deliveries were completed. This coupled with affordability constraints and changes in overall priorities deemed CEM termination a prudent risk.

## Other Items

This category contains funding growth of $15.9 million. The primary driver for this increase is the MJU-10B infrared countermeasure flare used to protect F-15 aircraft from heat seeking missiles. Funds were not requested last year due to production problems which we are confident have now been overcome.

Another item is the Items Less Than $2 Million line where we procure a wide range of items including ALA-17 flares for the B-52 for which a portion of the inventory's shelf life is expiring, to night vision sights that improve our nighttime air base ground defense capability. Also, $7.7 million is included for a classified special project.

## Fuzes

This category requests funds for fuzes that are not procured as part of an all-up round. The only fuze we are currently procuring is the general purpose FMU-139. We have increased our procurement quantities for this item in order to enhance the effectiveness of our general purpose bomb stockpiles. The FMU-139 replaces a number of aging Vietnam era fuzes whose reliability is degrading.

## Other Weapons

The other weapons category procures such items as handguns, machine guns and other small arms. This year's request contains two weapons. The first is the British made M252 81mm mortar which the other Services adopted in 1984. This weapon will be used by security police personnel in their air base ground defense duties since they are responsible for providing continuous high explosive and illumination, direct and indirect fire as part of this mission. Mortars are the most effective weapon for this purpose.

The second weapon is the M16A2 rifle which will replace the older M16A1 rifles that were procured in the early 1960s. The M16A2 rifle will be used by personnel who are assigned ground combat mission responsibilities, such as, Security Police, Combat Controllers, and Special Operations Forces. This weapon is a major improvement over its predecessor by providing enhanced combat capability through increased accuracy, lethality and range.

We are also requesting funds to procure an additional 1200 SAWs off the Army's multiyear contract. These weapons are also tied to our defense and security missions.

That completes the Munitions overview. I will now address Vehicular Equipment.

## VEHICULAR EQUIPMENT

Vehicles literally and figuratively allow a base to function regardless of mission. They are people "multipliers" by providing responsive personnel transportation, are absolutely necessary for transporting equipment and supplies, and are critical to launching and recovering aircraft. Their need extends to maintaining missile field combat readiness and the security and protection of all Air Force resources. The vast majority of our vehicles support these "mission-related" activities.

The Air Force requires 149,021 vehicles to conduct its day-to-day and wartime missions. We are short nearly 20,000, and 28 percent (or about 37,000) meet or exceed replacement criteria. The remanufacture programs, while cost effective, are not keeping pace with the need because of underfunding as well. It should be noted the remanufacture programs focus on a limited number of generally high cost, special purpose vehicle types representing a small percentage of our fleet.

Funding in the vehicle procurement program has not kept pace with requirements. Again in FY 1991 as in FY 1990, our request represents significant negative growth. As a result, we are uneconomically maintaining vehicles using limited O&M monies.

In the decreasing DOD funding environment, it is increasingly difficult to maintain the status quo. We are proactively reducing vehicle requirements in view of force changes and approved/planned base closures. We programmed no war readiness material vehicle purchases for FY 1991. We will ensure no vehicles are allocated to replace the 3,200 vehicles assigned to the five CONUS bases being closed, and the 5,300 vehicles assigned to the 11 overseas and four CONUS candidate closure bases announced by Deputy Secretary Atwood on January 29, 1990. Prudent, measured actions will be taken to relocate (with the supported units in some cases) vehicles if life expectancy and transportation costs warrant. The impact of the relatively small total number of 8,500 vehicles, due to approved and planned base closures, on our total replacement need alone of 37,000 vehicles is minimal. Moreover, application in the CONUS is not feasible for overseas vehicles because they lack anti-pollution devices, would incur sizeable transportation costs, some have right-hand drive, and many would lack parts support.

I will now briefly describe each of the six Vehicular Equipment categories.

## Special Purpose Vehicles

The 823 vehicles programmed for purchase ($27.8 million) will be used to perform specialized functions including fueling and defueling aircraft, and flightline towing of aircraft, munitions and ground maintenance support equipment. The single largest request is for 316 flightline tow tractors at $5.7 million. About half of the request is needed for numerous individual items each with a procurement value of less than $2 million.

## Fire Fighting Equipment

Fire and crash rescue equipment provides emergency crash and structural fire protection and rescue capability for Air Force facilities, aircraft, and personnel. All 136 vehicles in this category planned for purchase ($31.2 million) are vital to Air Force structural and crash fire protection. It is important to note $22.6 million is required for 48 P-23 crash/fire trucks exercising the fourth year in a five-year, multiyear contract.

## Materials Handling Equipment

This group of vehicles provides the Air Force with the capability for aircraft loading and munitions/supplies handling. Materials handling equipment is essential to maintaining a viable worldwide air cargo system capable of deploying forces to meet contingency requirements at any time. We plan to purchase 703 vehicles at $31.7 million, $13.5 million of which is for 263 10K forklifts on multiyear contracts.

## Cargo-Utility Vehicles

Vehicles in this category are of both commercial and military design and consist of pickup trucks, heavy cargo trucks, truck tractors, trailers and dump trucks which provide cargo movement capability. In addition to providing mobility for tactical communications, the commercially designed vehicles in this category contribute to direct operational support throughout the Air Force. This assortment of transport vehicles provides the prime source of personnel and cargo distribution at any operating location. Funding in FY 1991 will buy 2743 vehicles costing $53.1 million. Over $11 million is for a variety of vehicle procurements of which none individually exceed $2 million each. We need $8.2 million for 305 multi-stop vans critical to our aircraft maintenance units.

## Base Maintenance Support and Construction Equipment

Vehicles in this category form the backbone of the Civil Engineers in providing maintenance of runways, roads, pavements and grounds. Equipment includes scoop loaders, excavators, snow removal equipment and sweepers. Vehicle modifications and initial spares are also included in this category. We will purchase 147 vehicles at a cost of $17.4 million this year. Critical to our flying operations is the $3.8 million for an assortment of runway sweepers/vacuums and snow removal equipment.

## Passenger Carrying Vehicles

This category includes ambulances, buses, law enforcement sedans, and other sedans and station wagons. Station wagons and buses are the primary mode of transportation for aircrews and posting of security forces. We need 644 vehicles at $15.6 million this year to meet our needs. We should focus here on the $3.8 million for law enforcement sedans and $3.8 million for 44-passenger buses used for crew transport and numerous other mass transit needs. Of note is that sedans represent only seven tenths of one percent or $1.3 million of our total vehicle request.

This concludes the Vehicular Equipment overview. The next program I will address is Electronics and Telecommunications Equipment.

## ELECTRONICS & TELECOMMUNICATIONS EQUIPMENT

The Electronics and Telecommunications program acquires Command, Control, Communications, and Computer (C4) systems and equipment in support of Air Force, DOD, and other federal agency operations. This equipment ranges from small handheld radios to large, one-of-a-kind surveillance radars. The C4 equipment acquired with Other Procurement funds is used only in ground applications.

For purposes of presentation, I have opted to discuss the programs by functional categories rather than the budget structure categories.

## COMSEC

National Policy on Telecommunications and Automated Information Systems Security signed in September 1984 directed, among other things, the securing of all military communications systems processing classified data. The Air Force Communications Security (COMSEC) program procures a wide range of cryptographic equipment needed to secure both voice and data communications for strategic and tactical forces as well as all cryptographic equipment supporting such systems as the Satellite Control Facility, Defense Satellite Communications System, and other sensitive communications programs.

## Intelligence

The Air Force plays a large role in the collection and processing of worldwide intelligence information as well as the training of intelligence specialists who interpret the intelligence data and distribute it to the user community. To this end, the Intelligence Communications portion of the program supports a number of projects: Intelligence Equipment Items Less Than $2.0 Million; Intelligence Training Equipment to support basic and supplemental training for all services (Air Force is the DOD Executive Agent for intelligence training); Intelligence Data Handling Systems supporting Strategic Air Command (SAC) and Central Command (CENTCOM) missions; Tactical Ground Intercept Facility equipment for collection of communications intelligence; and Tactical SIGINT Support equipment which supports tactical cryptological programs.

## Strategic Communications Equipment

Equipment in this category supports strategic defense, space programs, and command and control of strategic forces. In discussing this category, I will cover three sub-groupings: Strategic Defense, Strategic Connectivity, and Space Systems.

Strategic Defense. Strategic Defense systems provide Tactical Warning and Attack Assessment (TW/AA) of impending attacks against the North American continent. The Air Force owns the majority of the sensor systems which supply TW/AA information to North American Aerospace Defense Command (NORAD), SAC, and National Command Authority (NCA). The following are the major programs included in the FY 1991 request.

Defense Support Program. The Defense Support Program (DSP) is a mature, operational system with the high priority mission of early warning of ballistic missile attack. Improvements to mission capability and survivability are underway. The FY 1991 program of $66.8 million will continue efforts begun in FY 1990 by upgrading the main data processing computers. The current data processing computers at the fixed stations are approaching the end of their life cycle and are overloaded. Additionally, the FY 1991 program continues to upgrade DSP mobile ground systems essential for compatibility with new generation DSP-1 satellites which have been launched beginning in June 1989.

SAC (Strategic Air Command) Command and Control. The SAC Command and Control (C2) program encompasses mission critical programs required to ensure the Commander-In-Chief SAC the capability to effectively command and control the two-thirds of the Nuclear Triad under SAC's control. The FY 1991 program of $68.4 million continues support for a number of key programs, among them the Strategic War Planning System (SWPS), which is the sole computer system responsible for developing and producing the Nation's nuclear war plan. Continued funding of this critical program is essential to ensure new aircraft and missile weapon systems are fully integrated into our existing nuclear planning structure. Also included are funds to complete the upgrade to the Primary Alerting System which transmits SAC and JCS Emergency Action Messages to the strategic forces and upgrades to SAC's Survivable Enduring Command Center (SECC). SECC is a ground transportable, electromagnetic pulse (EMP) hardened force management system which provides austere force management capability during a trans-attack period. B-2 support funding for a computerized logistics management system which tracks and manages unique components of the B-2 system is also requested.

Defense Meteorological Satellite Program. The Defense Meteorological Satellite Program (DMSP) is a mature, joint service program which provides survivable and enduring meteorological data through all levels of combat. The FY 1991 program continues upgrade of ground terminals to the MARK IVB version DMSP terminals. The upgrade adds capability to process satellite mission sensor (non-imagery) data critical to tactical forces employing smart munitions. Our FY 1991 request is for $17.5 million.

Minimally Attended Radar System/USAF-FAA Radar Upgrade. This is an on-going, joint (50/50) Air Force and Federal Aviation Administration (FAA) upgrade program replacing aging radars of the Joint Surveillance System which provide air defense radar information around the U.S. periphery. These radars, operated and maintained by FAA once installed, will feed data to both USAF and FAA operations centers. Failure to fund the Air Force fair share of the program will void FAA's multiyear procurement contract. Our FY 1991 request of $54.8 million will be combined with FAA funds to procure eight radars.

NUDET Detection System. Exact location of nuclear detonations is critical to National Command Authorities when providing nuclear force management and nuclear treaty compliance monitoring. The NUDET Detection System (NDS) will provide accurate, worldwide, near-real-time, three dimensional location of nuclear detonations. The FY 1991 program procures a Ground/Airborne Integrated Terminal (G/AIT). G/AITs collects information from the NDS space sensors (mounted on GPS satellites) and processes and forwards this information to National Command Authorities. We require $17.6 million to accomplish this procurement.

Strategic Connectivity

Strategic connectivity embraces command and control systems which transmit early warning assessment and other decision making information to and from military commanders and the National Command Authorities. Major programs within this category are addressed in more detail.

Cheyenne Mountain Complex. The NORAD Command Post located in Cheyenne Mountain provides the Commander-in-Chief of NORAD with the facilities and communications necessary to exercise command and control over his assigned forces and to provide essential decision-making information to the National Command Authorities. The Cheyenne Mountain upgrade is an on-going program designed to modernize and enhance the core software, computer resources, communications connectivity, and the various sub-elements of integration. Requested FY 1991 funding of $9.1 million specifically supports interfacing the NORAD Command Center (Granite Sentry) to the Communications System Segment of the upgrade and procures hardware for the Command Center Processing and Display System interface at HQ SAC. The FY 1991 program also encompasses funding to support U.S. Space Command (USSPACECOM) Command and Control Systems. Current mission responsibilities dictate the need for a consolidated, fully-operational command post as well as additional off-the-shelf computer systems to support USSPACECOM command and control activities. Continued funding for this program is essential to achieve a fully integrated/upgraded capability between all the sub-systems within Cheyenne Mountain and the many other systems which feed data to the mountain.

Milstar. The on-going Milstar satellite communications system will provide worldwide, two-way, secure, highly jam-resistant voice and data communications which link the National Command Authorities, strategic, and tactical forces through all levels of conflict or crisis. Ground system requirements, which complement space segment launch schedule, include EHF/UHF and EHF only terminals; handheld modules/time distribution subsets for initializing the terminals; EHF antenna support structures required at each Milstar ground installation; and solid state uninterruptible power systems for ground Milstar sites. Without these vital ground systems, our investment in the space segment of the program will not be used to its full potential. Here, we are requesting $178 million.

Space Systems

The third portion of the Strategic Communications Equipment Program consists of those ground communications facilities required to support space and missile test ranges, satellite control, and space systems operations. Noteworthy programs include:

Satellite Control Facility. The Satellite Control Facility (SCF), now redesignated the Air Force Satellite Control Network (AFSCN), is a national asset tasked to support the research, development, test, evaluation, and operation of satellite systems. AFSCN supports these requirements through satellite command and control, tracking, and the collection and dissemination of real-time telemetry. Data is collected and processed through a series of worldwide remote tracking stations, an extensive communications network, and two central control nodes (Onizuka AFB CA and Falcon AFB CO). The FY 1991 program of $87.9 million will complete procurement of replacement equipment for the last four Remote Tracking Stations. Requested funds also continue replacing antiquated equipment to improve the satellite control network efficiency and equipment reliability and continues efforts to keep AFSCN compatible with changes in current and future satellite programs.

SAMTO Test Range I&M. The Space and Missile Test Organization (SAMTO) headquarters was disbanded September 1989. The two national ranges, the Eastern and the Western Test Ranges at Patrick AFB FL and Vandenberg AFB CA, respectively, are now managed by Space Systems Division at Los Angeles AFB. The ranges provide primary support for all U.S. strategic missile and space launch programs (Space Shuttle, Peacekeeper, Minuteman, Trident, Poseidon, Cruise Missiles, Titan, Delta, Scout, Pegasus, and JCS Special Missions), conducts radar tracking and telemetry tests in support of aeronautical test operations, and supports operational testing of the United Kingdom's Polaris ballistic launches. The FY 1991 request of $47.1 million continues numerous projects which replace or upgrade portions of tracking and instrumentation systems which have become unsupportable or incapable of meeting mission requirements.

This concludes the strategic portion of our request. The next category covers Tactical Communications Equipment.

## Tactical Communications Equipment

This program will provide modern, interoperable, jam-resistant, and secure C3 equipment for theater and tactical forces. These are divided into two equally important areas: Tactical Command and Control programs and Tactical Communications programs.

Tactical Command and Control

Theater commanders require effective tactical C2 systems in place or deployable to the theater of operations in order to prosecute the war on the tactical battlefield. To meet this requirement tactical C2 systems must be flexible and reliable as well as packaged for transportability and ease of set-up. A discussion of principal programs follows.

Tactical Air Control System Improvements (TACSI). The Tactical Air Control System (TACS) makes maximum use of tactical combat aircraft by providing a means for centralized control and decentralized execution. The TACS Improvement program acquires state-of-the-art replacement equipment and capabilities essential to survival and combat effectiveness of tactical command and control. The FY 1991 program continues several on-going mission essential acquisitions. The Modular Control Equipment (MCE) program, a joint effort with the Marine Corps, replaces large, unsupportable, easily targeted, tactical operations centers with survivable, transportable MCEs. MCE provides for tactical integration of offensive and defensive operations, enroute air traffic control, integrated air/ground communications, and digital data links to all DOD theater forces and NATO allies. Eighteen MCEs are requested for procurement. Continued funding for the Contingency TACS Automated Planning System, a family of operations/ communications shelters for automating, connecting, and replacing antiquated and logistically unsupportable Tactical Air Control Centers and Air Support Operations Center is also included as is Anti-Radiation Missile (ARM) Decoy funding. ARM Decoy will enhance the survivability of Ultra-Low Sidelobe Antennas (ULSA) -- the heart of TACS units. ULSA procurement also continues in the FY 1991 program. ULSA equipped radar units are more survivable since they have a low probability of detection due to a significantly reduced radiation signature. Our total FY 1991 TACSI request is for $232 million.

Military Airlift Command (MAC)/Command and Control. As with the tactical battlefield commander the MAC commander needs to exercise effective C2 over his airlift forces. The MAC C2 is an umbrella program which continues upgrades to centralized command and control systems of the MAC airlift fleet in accordance with the developed MAC C2 architecture. The C2 architecture merges computer and communications technologies to optimize utilization of our limited airlift resources. The FY 1991 request for $22.1 million continues production of the Automatic Communications Processor used to control high frequency radio equipment; the Information Processing System which will provide critical airlift command and control information to all Active and Reserve units (Commander of Airlift Forces, Airlift Control Centers, Airlift Command Elements, and wing/squadron airlift units); and TRC-181 HF radios for integration into ground airlift elements. TRC-181 radios are the ground transportable version of the standard ARC-190 aircraft radios.

Tactical Communications

In addition to effective tactical C2 systems the theater commander needs a flexible, survivable communications network in order to effectively communicate with the forces. Funding in this area supports communications equipment for theater operations which serve a variety of purposes, all of which are vital to continued connectivity and efficiency. Mobile communications equipment is a must in every combat scenario and serves as an effective force multiplier.

Joint Tactical Communications Program (TRI-TAC). The Joint Tactical Communications Program (TRI-TAC) is a well established, ongoing program which fields the current generation of tactical communications equipment used by all services. The TRI-TAC program provides a family of modern, interoperable, secure, digital equipment sorely needed to replace outdated systems. The FY 1991 program of $72.5 million concentrates on procurement of TRC-170 Troposcatter Radios and Digital Group Multiplexers -- both essential for long-haul, secure backbone connectivity between deployed and fixed units. Without these key systems that will tie all the TRI-TAC components together into an effective, theater-wide communications network, the investment made in TRI-TAC over the last 25 years will not be fully maximized. The radio being replaced by the TRC-170 is not capable of effectively providing the necessary connectivity.

Satellite Terminals. Because of the unique features offered by satellite communications the Air Force relies heavily on satellite communications systems to support both fixed and tactical forces. The satellite terminal program procures ground satellite communications (SATCOM) terminals and associated hardware to support the C2 requirements of Unified and Specified CINCs and the connectivity requirements of the National Command Authorities, U.S. strategic and tactical forces, and NATO. Projects in the FY 1991 request encompass a number of on-going systems for which we require $18.5 million. Continued procurement of Anti-Jam Control Modem kits provides jam resistant communications and full interoperability with Army and Marine Corp SATCOM terminals for Air Force Ground Mobile Force Satellite terminals. The Ultra High Frequency (UHF) Satellite Terminal System (USTS) provides SATCOM terminals and systems control for MAC C2 and tactical and special operations. USTS is fully integrated and a key element of MAC's C2 system architecture previously addressed under the ~~MAC~~ C2 program. Finally, the program continues expansion and enhancements to the Jam Resistant Secure Communications (JRSC) system, ~~a~~ subset of the Defense Satellite Communications System.

Tactical C-E Equipment. The Tactical C-E Equipment program will acquire essential communications and computer equipment to satisfy C4 system requirements in support of the command-unique command and control systems of Alaskan Air Command, United States Air Forces Europe and Tactical Air Command and in support of deployable systems of the Tactical Air Control System and Combat Communications Units. The FY 1991 program continues procurement and integration of the PACER SPEAK family of radios. These radios are securable and ruggedized radios for use by Tactical Air Control Parties (TACP) in support of close air support operations as well as other tactical units. Procurement of Digital Communications Terminals (DCT) is the other primary program requested in FY 1991. DCTs are small, jam-resistant, hand-held message processors for point-to-point and netted communications between field locations. Our total request is for $22.6 million.

Anti-Jam Voice. Jam-Resistant communications are essential to the tactical commander to enhance the probability of sustained and successful communications with deployed and dispersed units. The Anti-Jam Voice program procures communications systems which fall into this category. ~~The~~ FY 1991 program initiates the first increment of SINCGARS (PRC-119) radios. SINCGARS will be procured in large quantities throughout the Army as their standard field radio. Like radios are required by Air Force units such as TACPs, Combat Control Teams, and security police in order to assure interoperability between the Air Force and the Army units they support. Our request for FY 1991 is $4.8 million.

## Base Communications Electronics Equipment

The Air Force has requirements at all its bases for common user base support communications systems. We refer to these common, standard systems as Base Communications Electronics Equipment. Included in this category is a large variety of systems which cover all facets of base operation. They are, in fact, the infrastructure so critical to continued support of strategic, tactical and combat support operations. The major programs are addressed below:

Weather Observation & Forecasting. Essential to all Air Force operations is timely, accurate weather information. Under the FY 1991 program upgrades and replacements of worldwide systems used by the Air Force Air Weather Service will continue. The largest requests are for the Automated Weather Distribution System (AWDS) and Next Generation Weather Radar (NEXRAD) programs. These two on-going programs modernize 1940-1950s era Air Weather Service base weather stations at 187 Air Force and Army sites worldwide and replace current fixed radars with new technology radars which enhance the Air Force's ability to protect scarce military resources from severe weather. NEXRAD is a joint DOD, Department of Transportation, and Department of Commerce (DOC) program with DOC as the lead agency. Another program which is essential to the operational effectiveness of all our systems which require accurate information about the ionosphere is the Transionospheric Sensing System (TISS). The TISS procures ground station equipment to receive NAVSTAR Global Positioning System signals, analyze the ionospheric electron content, and forward this information to atmospheric sensors such as OTH-B and BMEWS. Overall funding requested is $49.7 million.

Automatic Data Processing Equipment (ADPE). This procurement line acts as an umbrella program for Air Force-wide ADPE acquisitions or equipment additions to government-owned computer systems. Items to be purchased are commercially available ADPE from various manufacturers and third-party vendors. The systems and system upgrades directly support operational mission requirements and enhance both mission productivity and warfighting capability. We have estimated a 3.5 to 1 payback in productivity and manpower savings for each dollar spent on ADPE. These savings have already been factored in the Air Force budget mostly in the form of manpower savings. Most programs are continued implementations of efforts begun in previous years. Examples of the ADPE systems procured within this P-1 line include: Personnel Concepts III which automates our base personnel management functions; elements of our logistics management systems which when complete will automate our logistics requirements contracting, distribution, and maintenance functions; and computer support for the Air Force Academy. Our total FY 1991 request is $54.7 million.

WWMCCS/WIS ADPE. WWMCCS (Worldwide Military Command and Control System) is a system which supports NCA, JCS, CINCS and Military Departments through all phases of crisis and conflict dealing with conventional operations. Current WWMCCS software is being modernized to provide additional functions under the WWMCCS ADP Modernization (WAM) program being run by the Defense Communications Agency. Each service is responsible for funding the hardware upgrades and replacements to support the upgraded software. Hardware upgrades will be ordered from existing requirements contracts. Our FY 1991 program continues procurement of these hardware upgrades for our MAJCOM headquarters, and for the CINCs for which USAF is the executive agent. Additionally, each service has its own C2 software which feeds information to the joint system. This software must also be modernized in order to maintain the current electronic data links between joint and service-unique software. The Air Force Command and Control System program is responsible for modernizing the Air Force's

C2 software, and for procuring hardware and system software to support the Air Force C2 applications. Both software modernization and hardware installation is being provided via an existing contract. The total FY 1991 request is $ 18.4 million.

Air Force Physical Security Systems. Increasing investment costs of weapons systems, growing emphasis on anti-terrorist programs, and the cost effectiveness of replacing obsolete systems demand procurement of security systems for critical resources. The FY 1991 program contains $24 million for continued procurement of such items as: Air Base Defense Communications equipment, Perimeter Sensors, Aircraft Shelter Sensors, and Tactical Sensors. Without these new technology security systems increased manpower will be required to provide the same level of security.

Weapons Storage and Security. The Weapons Storage and Security System provides vaults for storage of tactical nuclear weapons at overseas air bases. Enhanced weapons survivability, greater security, and increased response time are achieved through this on-going program. The FY 1991 program buys the final increment of U.S. funded vaults for one base at a cost of $21.7 million. Remaining vault requirements will be NATO funded in accordance with prior Congressional direction.

Base Level Data Automation. The Base Level Data Automation program provides data processing support to virtually every base level functional area at Air Force Reserve, Air National Guard, and active Air Force installations world-wide. The FY 1991 program continues three well-established systems: the Core Automated Maintenance System (CAMS) which automates base maintenance activities; the Cargo Movement Operations System (CMOS) which automates transportation activities, and the Combat Ammunition System for base-level munitions management operations. Failure to continue these programs through to completion will leave the Air Force in the precarious position of supporting partially fielded systems while maintaining and manning our old manual-intensive operations. We require $22.1 million to achieve these automation enhancements.

Telephone Exchange. In general, our telephone systems are old, don't meet capacity demands, don't meet quality demands, and in some cases are still leased. At the heart of our effort to modernize, upgrade, and own our telephone systems is the Telephone Exchange Program. Under this on-going program we continue to replace old systems with new technology digital, computer-based exchanges; replace user premise equipment; upgrade or replace outdated cable plants; and finally, buy out expensive leases. More reliable systems allow us to reduce operations and maintenance expenses, allow for increased capacity requirements, can accommodate the quality and throughput requirements of new information systems as they are added at bases, and finally, provide automated quality assurance and system management; thus, increasing the efficiency of all communications circuits which transit the exchange. $70.9 million is contained in our request for these efficient upgrades.

Wideband Systems Upgrade. The Air Force is tasked with the responsibility to operate and maintain approximately 47 percent of the Defense Communications System (DCS). The Wideband Systems Upgrade program is an umbrella program encompassing all procurements tied to improving the reliability and quality of the Air Force share of the DCS. The Air Force is replacing slow, maintenance intensive, unencrypted wideband communication systems, with high speed, bulk encrypted, highly reliable digital systems. The FY 1991 program of $13.8 million continues improvements to the Digital European Backbone (DEB) in Europe and completes the undersea fiberoptic cable between

Japan and Okinawa under the Japan Reconfiguration and Digitization (JRD) program.

## Logistics Support and Training

The final presentation category is the Logistics Support and Training program. Procurements include initial spares, equipment modifications, training equipment, and those essential support items costing less than $2.0 million.

Range Improvement Program. The only substitute for actual combat experience for our pilots is realistic training against realistic threats which they may face in a conflict. The Range Improvement Program procures equipment to support this critical training and evaluation of aircrews as well as supports operational testing of weapons systems and tactics under simulated combat conditions. Equipment is needed to improve the realism of the combat environment simulation training performed by the Air Force and to yield more complete and accurate data for evaluation and interpretation of training performed. The Range Improvement Program supports vital on-going aircrew training at Air Force ranges worldwide. The FY 1991 request of $66.3 million will procure several different types of threat simulators, air/ground range integration equipment for the National Training Center at Fort Irwin CA, range communications systems, and data operations and mission control center enhancements at the Utah Test and Training Range.

Spares and Repair Parts. Effective in FY 1991 spares funding includes only initial spares as replenishment spares will be stock funded as part of a Defense Management Review initiative. Initial spares requirements are phased to ensure that essential spare parts are available and in place at the same time as the operational equipment reaches the field. Maintaining funding for initial spares is critical to fielding new systems in a timely manner and our ability to sustain the system once in place. Our spares request totals $139.8 million.

Items Less Than $2.0 Million. This P-1 line item funds numerous items of electronics and telecommunications equipment supporting the commands' Table of Allowance authorizations. Air Force units requisition items such as radios, telephones, recorders, and test equipment based on authorizations tailored to meet unit missions. Also included are items which become logistically unsupportable but are still required and need to be replaced. The FY 1991 request of $15.6 million only supports 23 percent of the requirement. Additionally, contained within the request is backup Power Conditioning and Continuation Interface Equipment (PCCIE) for computer systems. These power protection systems are necessary to protect not only the information stored on our many computer systems but also to protect the actual ADPE equipment from damage. Funds requested for PCCIE only scratch the surface of meeting known requirements. No single item procured in this line costs more than $2.0 million.

Class IV Modifications. Class IV Modifications correct safety and material deficiencies or improve system reliability and maintainability, but do not add or delete capability. Without this program, the Air Force faces the added acquisition cost of replacing the problem system or must continue to maintain and rely on a deteriorating system which jeopardizes mission accomplishment and safety. On-going reliability and maintainability modifications to our tactical precision approach control radars, our long-range radars in Alaska, and several other systems for which each modification is less than $500 thousand benefit the Air Force through reduced maintenance costs and equipment downtime, and the system user through increased operational availability. One new start modification is included which will improve the reliability and maintainability of the live-drop bomb scoring system used on our training ranges. To accomplish these modifications $18.9 million is requested.

This concludes an overview of the key programs covered by the Electronics and Telecommunications budget activity. Before proceeding, I would like to reiterate the central theme throughout the FY 1991 request, and that is the request supports "on-going" programs. Continuing and completing on-going programs as planned and costed is our primary goal. I will now turn my discussion to the fourth and final budget activity, Other Base Maintenance and Support Equipment programs.

## OTHER BASE MAINTENANCE AND SUPPORT EQUIPMENT

This budget activity is truly the "other" of Other Procurement. It contains a wide array of critical infrastructure items needed to support the total force on a daily basis. The items are not glamorous nor do they attract attention until they are not there. The requested funding would procure such things as: test equipment for our Precision Measurement Equipment Laboratories (PMELs), personal safety and rescue items, night vision goggles for our ground and aircrews, pallets and nets for cargo movement, industrial shop equipment, aircraft arresting barriers and mechanized materials handling equipment for our warehouses and air terminals. Each of these diverse items serves a distinct and essential function in supporting the readiness, mobility, sustainability and survivability of our forces. I will now discuss the specific items requested in FY 1991 by category.

### Test Equipment

We are requesting $68.4 million to procure electronic calibration and test equipment used throughout the Air Force to maintain the entire spectrum of weapon systems. Included are calibration standards and equipment, oscilloscopes, signal generators, power sensor meters, and spectrum analyzers, to name a few. Today's weapon systems require more sophisticated test equipment to provide the tolerances and measurements necessary to satisfy the accuracies demanded by these state-of-the-art weapon systems. The program supports 120 Air Force PMELs, including four Air National Guard (ANG) laboratories, and the Aerospace Guidance and Metrology Center at Newark AFB, Ohio.

### Personal Safety and Rescue Equipment

This category consists of night vision goggles, chemical and biological defense equipment, life preservers, life rafts, and other lifesaving equipment. Night vision goggles provide enhanced nighttime capability for our Air Base Ground Defense and other Security Police activities as well as our tactical and Special Operations Forces (SOF) aircrews. Chemical and biological defense equipment includes ground crew masks, chemical agent monitors and transportable collective protection systems. This equipment is critical for increased survivability, and enabling Air Force units to sustain operations in a chemical or biological warfare environment. Total requested for personal safety and rescue is $56.2 million.

### Depot Plant and Material Handling Equipment

Depot Plant and Material Handling Equipment automates material processing at bases, air logistics centers, and air terminals throughout the world. The mechanization equipment includes high density storage systems, pallet handling systems, wire guided storage systems, automatic stackers, and automatic receiving, storage and retrieval systems. Mechanized material handling equipment helps eliminate multiple manual operations and provides improved response, and efficient and accurate parts control, inventory, and maintenance. The improved productivity gained by the use of these systems results in the average system paying for itself in less than four years.

This program includes all industrial plant equipment to support maintenance activities at base level as well as all Air Logistics Centers (ALCs). A significant portion of the program supports Air Force Logistics Command's (AFLC's) Depot Maintenance Management Information System (DMMIS) modernization efforts. Industrial plant equipment provided by the requested funding includes equipment such as welders, lathes, grinders, and drilling machines used in the repair and maintenance of aircraft engines, hydraulic and pneudraulic systems, landing gear, airframe components, and instrumentation. While past investments have improved support, much of the industrial plant equipment is still over 20 years old and beyond its life expectancy. Rapid deterioration, limited parts availability, and costly maintenance remain concerns. Replacement of this antiquated equipment will ensure a more effective aircraft parts manufacture and repair process, greatly improving readiness and sustainability by reducing aircraft downtime and increasing aircraft availability. The total funding requested is $125.1 million of which $77.7 million is required to equip and modernize AFLC ALCs. This program used to be called Asset Capitalization.

## Electrical Equipment

The Electrical Equipment category includes mobile electric power generators ranging from 3KW to 750KW, and associated wheel kits. These generators are required to supply critical primary and backup power to hospitals, communications systems, radar systems, control towers, and runway lighting systems, as well as other maintenance facilities. This electrical equipment is critical not only for daily use on air bases, but is critical to units at remote locations and those with mobility commitments for use in forward operating locations. Requested funding of $10.4 million continues production of lightweight engine generator sets required to support communications systems deployments.

## Base Support Equipment

The Base Support Equipment funding request totals $217.6 million and includes disparate programs ranging from sophisticated medical and dental equipment to cargo pallets and nets. The equipment and programs that fall within these extremes are photographic equipment, mobility equipment, Air Base Operability measures, base procured investment equipment, tactical shelters, productivity programs, Wartime Host Nation Support and spare parts. I will discuss some of the larger dollar programs.

Medical/Dental Equipment. The Medical and Dental request of $84.2 million is by far the largest program. Funding will procure state-of-the-art lifesaving and diagnostic equipment which is needed to assure quality care, compatible with the technological advances of modern medicine in the private sector. Modernization and replacement of old equipment are essential as new technologies have produced equipment which offer significant improvements to diagnosis and treatment. A portion of the funding is for initial outfitting equipment for new, expanded, or altered health facilities funded in the Military Construction Program. Additionally, environmental and safety standards and related laws have mandated the modernization and replacement of equipment. Funding also supports the global aeromedical evacuation system for which the USAF is the single DOD manager. This system is crucial in providing lifesaving aeromedical evacuation of casualties of natural disasters and during conflict.

Base Procured Investment Equipment. Another very important segment of the Base Support Equipment category is Base Procured Investment Equipment (BPIE) funded at $38.5 million. This program provides local commanders the funding to procure non-centrally managed investment items costing over $15,000. The program gives the commanders the greatly needed flexibility to respond to the most urgent needs and locally purchase critical equipment. Typical items procured are corrosion control equipment, printing and graphic equipment, specialized laboratory equipment, and dining hall equipment.

Air Base Operability. Funding for Air Base Operability equipment is also requested in this category. This program provides equipment to enhance the survivability, recovery, and operation of our air bases in a combat environment. This year's request of $11.1 million will procure equipment for rapid runway repair, revetment kits and contingency airfield lighting. All three projects provide a global capability, which is critical to responding to conflict in today's rapidly changing environment.

Productivity Enhancement/Investment. The last of the Base Support programs I will address deals with productivity. Productivity Enhancements and Productivity Investments are two programs that center around fast payback capital investments to improve effectiveness and efficiency of Air Force organizations and units. Many of these improvements are generated as suggestions from our intuitive troops in the field, and have been most successful in cutting costs and reducing manpower. Funding requested in FY 1991 is $22.4 million.

## Special Projects

This is the last category and largest dollar value. However, only a small percentage of the funding is equipment-related. This highlights the point I made earlier about the appropriation being skewed. The funding I will address is for Industrial Preparedness, First Destination Transportation, and Modifications. Industrial Preparedness acknowledges the private sector industrial base as a vital element in national deterrence, and is part of a larger Air Force industrial revitalization effort called the Industrial Base Program. The program is designed to ensure civilian industry is capable of supplying reliable, cost-effective systems and components to the operational commanders in peacetime and national emergencies. First Destination Transportation funding covers the cost of shipping items from point of acquisition to where it is first received for use, storage, or distribution in the military system.

Mr. Chairman, this concludes my prepared statement. I would like to express my sincere thanks to you and to the members of your Committee for all your support. Your continued support will help ensure adequate OPAF funding commensurate with a strong Air Force. I will be pleased to entertain any questions at this time.

## ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE

Mr. **Murtha**. Let's talk about AMRAAM. Last year we cut 19 programs out of the House side. Some people didn't seem to realize that there was any possibility those programs might be cut back. This year I want to put people on notice that these programs do have problems so we can hear from them. A number of those programs were funded at the level you suggested and some were funded at less. We put some programs back in. We certainly were able to get some efficiencies in the programs. The Secretary of the Air Force took an interest in one in particular and it has improved substantially.

Talking about AMRAAM, so many failures were experienced during the captive carry reliability testing that the Air Force stopped acceptance of production missiles. The 4 versus 4 test last August was a failure as all four missiles missed their targets. Both contractors experienced delays in deliveries of lot I missiles.

On February 26, 1990, Secretary Rice informed the Congress that the program acquisition unit cost had increased by more than 28 percent, well above the 15 percent threshold that necessitates notification. Total acquisition costs for 24,431 missiles have increased to $14.885 billion in then-year dollars. Procurement costs have risen to $9.38 billion in constant 1984 dollars from $7.7 billion estimated a year ago. With this litany of problems, why shouldn't the Congress terminate further AMRAAM procurement?

Mr. **Welch**. Starting off with the need of AMRAAM, I think that need has been defined over the years. If we take the priority list of all CINCs in the war fighting commands we find the need for that kind of a capability always ranges very high up on the list.

Mr. **Murtha**. What is the capability of AMRAAM?

Mr. **Welch**. The key capabilities of the AMRAAM are that it provides multiple kills per pass and increased launch aircraft survivability. It is a launch and leave type of system.

Mr. **Murtha**. What is the range?

Mr. **Welch**. The range of the AMRAAM——

General **Ferguson**. I would say from 20 miles out plus 40.

## AMRAAM RELIABILITY

Mr. **Welch**. General Ferguson is a former AMRAAM program director, and is very familiar with this program. If we go over the last year, I think we have to say that the kind of failures are failures that have been occurring in captive carry for the most part when the missile is not in free flight and when it is experiencing the environment as you carry it around on a fighter aircraft.

Mr. **Murtha**. I don't understand what that means.

Mr. **Welch**. Let me describe the situation as we put the missile on the F-15, it is probably the most difficult. If you recall, as you are looking straight on at the F-15 it has a square fuselage back where the conformal fuel tanks are attached where they carry external fuels. There are two AMRAAM missiles, one fore and one aft on either side. Those are on what we call eject stations. They are ejected off. They are carried on the wings and go down a short rail launcher before they go off. The most challenging thing we have had in the past year, and it has been a little longer than a year since we have been under this environment, was that as you carry these missiles, typically launch the sortie and go out and fly, there is a lot of maneuvering going on that does not fire the missile.

You then turn around and bring it back. The requirement is set by the fact that AMRAAM is a joint missile program, an Air Force and Navy program with the Air Force lead. The Navy desires to carry these for 450 hours on the aircraft without a maintenance action. So that is a pretty long period of time.

That is much different than what the Air Force would do, but be that as it may, that is the requirement. What the Navy would like to do is to upload their missiles on the aircraft, put the aircraft and missile combination on to the carrier, be able to fly during the carrier cruise and come home and not be required to do any maintenance. That is what sets the 450-hour mark.

As you fly in combat in the typical maneuvering at a high speed and if you chop the throttle to idle, you get spillage of air. It creates a very turbulent environment that these two missiles on each side sit in. We have had difficulty because that environment is a more severe environment than was realized when we started the program. So our biggest challenge throughout the year was to make sure that we have sufficient design margin in the missile to live in that environment for 450 hours with a minimum maintenance action.

Mr. **Murtha**. That was a long answer but my question is much shorter. I think you said you need the range of this missile. Is that the short answer?

Mr. **Welch**. We need that range missile and we need its ability for the launched aircraft to be able to launch missiles at individual targets. Tom.

### AMRAAM CHARACTERISTICS

General **Ferguson**. I would try to answer the question this way, sir. It would be to say I think as we look to the future we anticipate that we will be dealing with smaller forces. What AMRAAM brings to the fighter force is that it doubles the effectiveness of the F-15 and goes up six times the effectiveness of our F-16's. So it is a force multiplier.

Mr. **Murtha**. How does it do that?

General **Ferguson**. Because of its characteristics which are launch and leave. To be able to launch multiple AMRAAM's at multiple targets which you cannot do with the AIM-7, which is only one missile.

Mr. **Murtha**. How many would the aircraft carry?

General **Ferguson**. You could load up to eight missiles on an F-15. I think what you would normally think of is that each F-15 might launch two missiles in an engagement although we have demonstrated on many occasions two missiles having been launched successfully against multiple targets.

Mr. **Murtha**. You fire these at 20 to 40 miles. You have the Sidewinder and the Sparrow and the Navy has the Phoenix. So you are now trying to move out to the Phoenix range in the Air Force. It is also picking up the multiple targets, right?

General **Ferguson**. And to extend with a missile that has very good characteristics to engage maneuvering targets at beyond the visual range. So it is extending the capability beyond the AIM-9 but with many of the characteristics as far as engagement against maneuvering targets.

Mr. **Murtha**. So this is a longer range than the Sparrow and it also can pick up all of the targets, if it works. If it doesn't work, that is the problem.

General **Ferguson**. Well, we are very optimistic because we essentially ran the profile.

Mr. **Murtha**. Let me go over this. We are going to have to make this decision and Mr. McDade and I will be looking at this closely because this is a very expensive program.

Mr. McDade, they just said that it increases the effectiveness of the F-16 by six, increases the efficiency of the F-15 by two. General Ferguson was the program manager for this program. One of the things we have found is that people who have been with the program a long time tend to be biased toward it. Do you feel your bias is speaking here?

General **Ferguson**. No, sir, because there was an update that was requested, which the operational test organization at DOD asked our user to reevaluate the importance of the missile to the mission, which they did this past year.

Those numbers did not come from me. They come from the Tactical Air Command as far as what they judge the effectiveness of the missile to be.

Mr. **Murtha**. In your professional opinion, we need this missile out there, is that what you are saying?

General **Ferguson**. It is not only my personal professional opinion but it is that of our tactical air forces.

I would like to return to the test we just completed because I think it is very significant. It is the preliminary test for the four missile launch against four targets. We actually flew that mission exactly as it will be flown perhaps later this month or early next month, but we only launched two missiles. Both missiles were successful. One was a direct hit. It was done in as intensive ECM environment as any air to air missile we ever tested. It is the same scenario. We will go back on the 4V4 and shoot four missiles instead of two. It gives us a great deal of confidence in the performance and capability of the missile.

Mr. **Murtha**. Now you say it is successful. We heard the same thing about the actual operations of Stealth in Panama from the highest authority. They told me that was a successful mission.

Before this Committee they told me it was successful. It turns out it was less than successful according to reports that I have. But this was an actual test measured by the Air Force.

So you say there is no question about this. There may be a question about the Stealth fighter but there is no question about this, is that right?

Mr. **Welch**. Sir, the test that we are talking about here are tests that are in fact performed as part of a joint task force with an independent tester. I have an explanation I think it may help you to understand for the Sparrow missile, which is a semi-active missile, the aircraft launches the missile and must continue to illuminate the target to provide reflected energy for the missile to guide on. The aircraft in fact launches an AMRAAM and is free to leave and maneuver, launch another one, up to the total number of AMRAAMs it has. So not only does it increase effectiveness with respect to the targets, it increases survivability with respect to the launching aircraft.

### AMRAAM COSTS

Mr. MURTHA. Doesn't this increase in cost worry you?

Mr. WELCH. Certainly we are concerned with the increase in cost. In fact we are revisiting that. That cost results from an independent analysis that was done by the cost analysis group. There are a number of things that have changed since the cost cap was put on a number of years ago. I think we have to review. We are getting lot 4, negotiations are going on with the contractor and we are looking at the lot 5 missiles.

The assumptions that went into the two cost estimates that have been done by the program and done by the independent analysis people are off significantly.

They differ in the order of $1 billion. We are trying to resolve that particular difference. My personal feeling is that the number that was reported is higher than we can get from any of the contractor proposals or higher than we can get from our own program. So we will come to you again with that.

Mr. MURTHA. You are saying even though there is going to be less of a buy and you know very well there is going to be less of a buy, these figures are still exaggerated.

Mr. WELCH. They are another opinion.

Mr. MURTHA. Give it to us with some accurate figures. When is the next test going to be, 4 versus 4?

Mr. WELCH. Probably the later part of April or early in May. But again, I believe the thing that will pace the program will be making sure that we have the process, not design changes, with the missile cleaned up so that we can pass the captive carry test. We have been having very good in-flight success with the missile to date.

Mr. MURTHA. Mr. McDade.

### TACIT RAINBOW

Mr. McDADE. Thank you. Welcome gentlemen.

Let's talk about Tacit Rainbow program which received no procurement funding in fiscal year 1990, is looking for $227.4 million for 270 missiles in 1991. During the past year, the Navy has backed out of the program.

Do you think the Navy position is irrevocable and, without the Navy, does it make sense to proceed with this program?

Mr. WELCH. In the first place it is a tri-service program.

Mr. McDADE. It was anyway.

Mr. WELCH. It was.

Mr. McDADE. We are now down to one?

Mr. WELCH. No, sir, the Army is with us.

Mr. McDADE. Is the Navy decision irrevocable?

Mr. WELCH. You would have to ask the Navy that.

Mr. McDade. The Navy is not here. Unfortunately, you are all I have, Mr. Welch.

Mr. Welch. We have not seen the requirement for this missile change in the Navy, only their procurement.

Mr. McDade. The Army is a bit different?

Mr. Welch. Yes, it is ground launched. Certainly from subsystems and others there is a real similarity. In fact we have a second source involved in this missile that will direct itself toward the ground launched version particularly but also has the ability to roll back and become a second source for the air launched also.

Mr. Murtha. You are going to still have a second source even though we are going to buy less—you still feel the second source is viable?

Mr. Welch. Yes, sir. Both the Air Force and the Army inventories for this type of suppression weapon is actually up when they went across and asked all the war fighters that last year. So both the Army and the Air Force.

Mr. Murtha. That is what you might want. But I am saying, I am guessing, I could be completely wrong but I am guessing you are going to have to buy a lot less than you anticipate.

Mr. Welch. I think we will buy a lot less than we anticipated but we are far beyond the break even concern. This program buys a lot of missiles. You use them for defense suppression.

Mr. Murtha. You need a second source if you build the program?

Mr. Welch. Yes, sir.

Mr. McDade. Let's pursue that a little bit. Does the number $59.5 million to facilitize ring a bell?

Mr. Welch. Yes, it does. That is the number that we have budgeted to start up the second source. If that in fact is the number, then we believe that at a quantity of about 12,000 we would cross over the break even point.

Mr. McDade. We are going to give this a good scrub. Requirements are probably going down. I don't know what it is going to be like when you get into the new FYDP. I don't know whether you will be able to justify second-sourcing.

Mr. Welch. We agree that all those things are variable in the environment that we are in right now.

Mr. McDade. They are variable in here that is for sure. What is the total cost to get the second source?

Mr. Welch. I would say here we have a very good case even at the lower levels of budget that we are talking about, that that number could compete very well for the dollars. It has a lot of reference.

Mr. McDade. Can you assure the Committee that you will have a cost saving on each of the missiles?

Mr. Welch. Yes, sir.

Mr. McDade. What is the percentage?

Mr. Welch. I don't have the percentage. They would cross over at that point. If we achieved what history tells us we would gain from the competition. We may have a number.

General Ferguson. That is 12,000 out of ——— missile buy.

Mr. McDade. You are saying when you reach 12,000 that is when your unit cost starts coming down?

General **Ferguson**. That is when you have recouped your investment for the second source.

Mr. **McDade**. That is assuming. There are a lot of assumptions. This program has not been without its stretches either. We used to constantly say to you fellows, go out and do a second source. Now with the requirements going down sometimes when you pursue that policy you end up spending more than you originally intended to. That is a concern that rises its head in this program. How do you address yourself to that, Mr. Secretary?

Mr. **Welch**. I think that on this one we had particularly good competition. The investment you mentioned, we should cross over and repay that by the 12,000 missile. General Ferguson says we have a requirement for ——— missiles so we feel we have a real margin. On this particular program, the second source contractor is well established, someone who has featured going into the second source business and proved himself to be competitive and that is Raytheon. They have been second source in Maverick, Phoenix, and others.

Mr. **McDade**. Those were days when it looked like requirements would increase, not decrease.

Mr. **Welch**. I have not seen a combined service profile that has come anything less than 12,000, assuming we finish the test program successfully.

### TACIT RAINBOW SCHEDULE

Mr. **McDade**. LRIP has slipped more than a year from the program presented last year but the 1991 budget request has actually increased from the 1991 column and delays are continuing. The Air Force is not on contract with its 1989 funding yet, is it?

Mr. **Welch**. We are not.

Mr. **McDade**. That is because of these slips that have occurred in the program and your reluctance to sign up.

Mr. **Welch**. I think we are driven to committing the funds right now and trying to reconcile the bid we have from the prime contractor and the money that we have budgeted. We continue to have challenges within the test program. This is the first time we have tried to test a missile that goes as a lethal attack of emitters. There is a lot of potential for false targets.

We are trying to go in a very disciplined fashion and finish those things up before we get into verification.

Mr. **McDade**. We want to urge you to do that too and not get involved in a program that can cause you headaches later with a full-scale contract coming up.

Mr. **Welch**. Here is where we get into a difference sometimes, is to recognize that we have these hearings now and recognize the dollars don't become available to us of course until much later in the year. So by the time we contract, we have the lead time with some judgment of success.

### OPERATIONAL TEST RESULTS

Mr. **McDade**. We don't want to force you to obligate when you don't think you ought to.

I am quoting. The 1989 OSD operational test report indicates: "Review of the updated operational test program generated two significant concerns. First, the operational employment must be clarified, and second, requirements for target threat arrays must be better defined."

Please explain the concerns and how the Air Force intends to deal with them.

Mr. **Welch**. I think we would agree that there is additional work in the so-called test and evaluation master plan to address itself to weather, the all weather aspects of the testing were not completely covered there.

I think that since there are many potential ground radar emitters in there, how you mix and match those, the threat array was not well discussed. We have an action to clear that up so that we know what we must test against.

By cleaning that up. We will also know when we can stop testing. Sometimes you test forever because everybody gets a new "what if". The action is ours to get that cleaned up and approved.

Mr. **McDade**. You are trying to discriminate between the high value threat emitters with this, rather than having it be an indiscriminate action to emission.

Mr. **Welch**. It is programmed to the high value with respect to the things they might destroy. That is not quite so much the problem as is the array of targets and what will be available and when to be attacked.

I think the target value analysis is a pretty good table that we have.

Mr. **McDade**. You feel you are on firm ground?

Mr. **Welch**. Yes, sir. We do have to clean it up.

## PEACEKEEPER MISSILE

Mr. **McDade**. We will want to work with you. Keep us advised please. It is another program we are watching. Let's turn to Peacekeeper. Both the GAO and the DOT&E have identified the Peacekeeper Rail Garrison as a highly concurrent program and it seems to be getting more so. The first flight test is now scheduled for the third quarter of fiscal year 1992, a slip of about nine months. The initial and full operational capability (IOC/FOC) dates have recently slipped six months to December 1992 and December 1994, respectively. Yet the fiscal year 1991 budget requests about $1.3 billion in procurement funds.

Has the Air Force acquisition plan also changed as a result of the recent schedule changes?

Mr. **Welch**. I think that we saw some small change in the funding last year that slipped our first assets available date by about six months. We set the first assets available date of December 1992 which matches up with the $1.346 billion that is in the procurement budget now. It is basically maintaining what we call a two-year deployment window. In other words, you fully fund in any given year the start of the trains and missile procurement and of course the missiles are basically coming out of the silos, two years later you should be able to have the assets available to clear IOC. As the dollars go up and down, you kind of march that two year window to the right. I don't think we have changed things. As I see it we have the first trains, seven of them in 1991 and then 12 trains in 1992. The final six trains to make a total of 25 would be funded in 1993.

Mr. McDade. You are saying in fiscal year 1991 you are planning to buy seven and that would be before your flight testing is conducted?

Mr. Welch. Yes, sir.

Mr. McDade. You say you are doing that because you are looking at total two year window but if the procurement funds were not appropriated in 1991 what impact would it have on the revised IOC/FOC dates?

Mr. Welch. You have the two year sliding window. You can take year for year if you want to move those assets available.

Mr. McDade. We are looking for money everywhere. This is a tough year for us.

Mr. Welch. Yes, sir.

Mr. McDade. If you want to belly up, if there is no significant impacts——

Mr. Welch. Well, I think you gave us a similar offer last year.

Mr. McDade. I get the same response this year?

Mr. Welch. Yes, sir.

Mr. McDade. The 1990–1991 budget submitted in January 1989 included $823 million in command and launch equipment for five missile launch cars and $347 million for support costs for the 1991 program. This year those amounts have changed to $655 million for 14 launch cars and $503 million for support. Those are pretty flexible to use a moderate word. How do you justify that?

General Ferguson. If you add the funds in each of the two equipment areas and look at them over the 1990–1991 interval, they are about the same total. So what you have to remember is that——

Mr. Murtha. What lines are you talking about here?

General Ferguson. In the question, $823 million in the command launch equipment for the five missiles and $347 million for support costs which we submitted in the January 1989 budget. Then when we submitted the budget in 1990, those figures changed to $655 million and $503 million for support. The total dollars in each of the two subheads did not change.

Mr. McDade. You are still asking for roughly $1 billion but you have significantly changed the categories of figures.

General Ferguson. Yes, sir. That is basically the fault of our ability to properly describe in a P series document what we were really requesting. We did have a request for 14 cars actually in both requests. The January 1989 document that was submitted only reflected the missile launch cars, the operational cars. In both submittals we intend to buy 14 total vehicles.

Mr. McDade. Are you saying you did not properly identify the requirement?

General Ferguson. I think we have identified in the most recent submittal the additional nine launch cars were not specifically broken out in the January 1989 submission and were included in the dollars but not specifically broken out because at the time we submitted the estimate we thought we should only identify the 5 MLC's.

Mr. McDade. I hear what you are saying. You need to hear from us that when we see estimates that apparently on the face change like that, it makes us wonder how much stability of price is in the program and raises a red flag with us.

We urge you to be as careful about that as you can.

General Ferguson. I understand.

Mr. McDade. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Young.

### MILSTAR SATELLITE TERMINALS

Mr. Young. First I want to talk to you about the MILSTAR terminals. Your budget request of $178 million represents an increase of $124 million for the current fiscal year.

What is the status of the RDT&E program for MILSTAR terminals?

General Bracken. The MILSTAR core development program is essentially complete. We have a considerable amount of development activities that remains to be done for the successful deployment of the terminals. RDT&E budget plus activity to enhance our ability to logistically support the terminals. We have to fabricate and install the engineering development model terminals for the EC-135C aircraft and select ground sites.

We have to accomplish C-18 flight testing on that aircraft. We have to do the IOT&E and enter operability testing with the on-orbit SATCOM SACOM EHF package. We have to start full scale development of the second generation low cost/low volume terminal for the MILSTAR program. Our budget in 1991 was reduced to $24 million to rephase the funding with execution so we will not have an exclusion problem for the RDT&E monies.

Mr. Young. With regard to your low rate initial production of the MILSTAR terminals, is 1991 the last year of the low rate production?

General Bracken. The LRIP contract option funded with 1991 funds will bring the maximum LRIP rate to twenty-six ground applications and five additional ones for aircraft installations. It is the last.

Mr. Young. Will that be the maximum production rate or will that change later on?

General Bracken. I think what we buy in production will be based on the aircraft applications that we have to put it on as well as the ground application we have to put it on. I think that the numbers that we buy in any year will be at rates that we can efficiently produce the terminals and also address affordability over the period that we are planning to procure MILSTAR.

Mr. Young. Your budget is realistic and you are not trying to load it down with extra dollars that you cannot spend efficiently?

General Bracken. No, sir. We are very sensitive to the affordability issue and executing the dollars in the right sequence to match the ground and airborne situations when they present themselves.

Mr. Young. What milestones do you have to achieve before going into full rate production?

General BRACKEN. The kinds of things that we need to go through before we will entertain full scale production are, we have to accomplish the DT&E and IOT&E of the MILSTAR installed on SAC EC-35's and at the underground command post at Nebraska. Additionally, we have to do end to end system testing with Fleet SATCOM packages, the satellite payload simulator, the development our flight satellite and the factory, mission control elements, as well as the Army and Navy terminals before we can go into full rate production.

Mr. YOUNG. You mention the EC-135, will there be other aircraft that will receive the initial MILSTAR terminals?

General BRACKEN. The MILSTAR communications control and operational concept and the MILSTAR system level initial operational capability definition dictate which aircraft receive MILSTAR terminals.

In general, the force command and control nodes will receive the MILSTAR terminals followed by the force elements themselves. We look at the command and control elements first and then the actual force elements.

That is our sequence of which are and ground applications will get the terminals first.

Mr. YOUNG. Are there any other criteria for aircraft to receive the MILSTAR terminals? Do they have to be a certain size or speed? What criteria has been established?

General BRACKEN. Aircraft receiving MILSTAR terminals will be the aircraft performing the command and control mission. The National Emergency Command Post will be one of the first aircraft to receive the terminals. Our projected buy of terminals is approximately 930 terminals of which 470 are for aircraft and 463 are for ground application. Basically, we are looking at the large airplanes, not fighter type planes.

Mr. YOUNG. The 930 number that you gave us, will that be the total buy?

General BRACKEN. As we see it now, yes, sir.

Mr. YOUNG. For the Air Force?

General BRACKEN. That is just for us, sir.

Mr. DICKS. Will you yield?

Mr. YOUNG. Yes, of course.

Mr. DICKS. Did you mention the B-2? Will MILSTAR be on the B-2?

Mr. WELCH. It is deferred right now at the moment. I think we will probably need to discuss that somewhere else, Mr. Dicks.

Mr. YOUNG. One last question on MILSTAR, are you satisfied with the terminal progress?

General BRACKEN. Yes, sir, I think the terminal program is on track.

Mr. YOUNG. Does it fit into the overall MILSTAR program? As far as you are concerned is it on track as well?

Mr. WELCH. The satellite portion.

Mr. YOUNG. The whole thing. The terminal you are talking about is going to fit into the overall satellite program?

General BRACKEN. Sir, it is being designed and tested to operate in the total environment. To the best of my knowledge, it is on track in terms of phasing with the actual satellite balls that are going to be in orbit.

Mr. **Welch**. There was some change in funding last year. The slipped program that was shown as a result of the program last year from 1992 is on schedule at this time.

Mr. **Young**. Can we assume that the Air Force is supporting strongly the MILSTAR program?

Mr. **Welch**. The Air Force is supporting the MILSTAR program, yes, sir.

Mr. **Young**. On occasion there has been a question raised about who supports it and who does not support MILSTAR but there is no question about the fact that the Air Force supports this program?

Mr. **Welch**. Yes, sir. It is in the budget.

Mr. **Young**. Thank you very much. Thank you, Mr. Chairman.

### ADVANCED CRUISE MISSILE (ACM)

Mr. **Murtha**. Secretary Welch and General Ferguson have to go to a meeting. Do you want to ask questions about the advanced cruise missile, Norm, and then Secretary Welch has to go to another meeting.

Mr. **Dicks**. How are we doing?

Mr. **Welch**. This has been an excellent year. We have met all the bounds for flights. The remaining problem we have is that we discovered in transport a problem with a fuel bladder. When it is transported the bladder material rubs together a little bit and causes what you would call a weeping or fuel fume problem. We are going to have to do some work on changing that bladder material. We put foam in there to try to keep it from rubbing. That was not totally successful. We see no show stoppers at the moment.

I believe it will be another month or so before it will be finished. That will clear the system for recycling and getting all the fixes in the delivery about a year from the time that that fix is in fact confirmed.

It is a process material thing. It has nothing to do with flight test. About a year after that we will have enough assets in place to be operational. It has been a very good year as opposed to when we were over talking to you last year.

Mr. **Dicks**. The inventory objective for the advanced cruise missiles is 1,461, with operational integration required on the B-52H and B-1B. What part of the objective is for B-52s and what part for B-1s?

Mr. **Welch**. We would very much like to delay the qualification of the cruise missile on the B-1. As you are aware we were directed last year to continue B-1 testing and we are in the process of responding on that to the Congress.

We would like to delay the cruise missile testing on the B-1 until the latter part of this decade. In answer to your first question, the inventory objective, as we look at B-52, only the B-52Hs are well-spelled out because they need modifications. The allocation of ACM among the carriers, B-1, B-52G and H is to be determined.

Mr. **Dicks**. You have B-52H, correct?

Mr. **Welch**. Right.

Mr. DICKS. You are going to have about 20 of these on each B–52H?

Mr. WELCH. 12.

Mr. DICKS. Only 12?

Mr. WELCH. Yes, sir.

Mr. DICKS. You are talking about 900, are you talking about 1,080 as the maximum you could carry on the 90 B–52H, right?

Mr. WELCH. That is correct.

Mr. DICKS. How many of these are you going to buy? First, as I understand it, it is an inventory objective. You would not have any ALCM–Bs, you will take them out. We are talking about a post-START structure here.

Mr. WELCH. The inventory will have ALCM's and ACM's in it at the same time. The total of ACM and ALCM will exceed the total number of hooks, if you will, that you can put them on. But this drives the ALCM's out of the inventory at about the ten year mark, I believe this is when the fuel storage systems ages out.

Mr. DICKS. Is 1,461 still the inventory objective?

Mr. WELCH. It was when we put this together. I would have to tell you we are looking at that number as all others as we come down. It will not be more than that certainly.

Mr. DICKS. Is it going to be less?

Mr. WELCH. I could not tell you until we take a look at the force structure that will match up in the budget.

Mr. DICKS. Give me an answer on why you don't want to follow the congressional directive to finish B–1B ACM integration testing. Two are characterized as cruise missiles carriers because they test with cruise missiles.

Mr. WELCH. That is right.

Mr. DICKS. Explain why you don't want to do this. I happen to agree with you on this by the way.

General FERGUSON. We completed the integration so we understand the interfaces as they exist today and are quite certain that if we proceeded on in to the flight test then, in fact, we could demonstrate that we do understand the integration of the ACM on to the B–1. The reason we want to defer is because we don't see the B–1 becoming operational until the latter part of the decade.

One anticipates that the interfaces change over time and we will have to go back and repeat the very expensive flight tests if we were to proceed to do them now.

Our position is that we would prefer to delay those expenses and do it just prior to the time that we really want to go operational on the B–1.

Mr. WELCH. I think that perhaps there is a more driving function. There is no need to spend that money today, we are certainly short of budget.

Mr. DICKS. How much is this going to cost?

Mr. WELCH. $149 million was the estimate.

Mr. DICKS. After several failures, and the denial of procurement funding in 1989, the FSD test program finally registered six successes, allowing fiscal year 1987 funding to go on contract. Now we understand a new problem has arisen in the fuel bladders which is causing leaks during transportation. What are the details of this issue and how serious is it? Is the Air Force currently accepting any missiles from the contractor? When do you expect deliveries to start?

Mr. WELCH. We have continued testing on the missile, but we do not see the problem on operational deliveries.

Mr. DICKS. Is the Air Force accepting any missiles from the contractors because of this?

Mr. WELCH. No.

Mr. DICKS. When do you expect deliveries to start?

Mr. WELCH. We hoped to start at the end of April. Until we finish with the material problems it may be into May, but it is imminent.

### ACM ACQUISITION STRATEGY

Mr. DICKS. Are you still doing a second source?

Mr. WELCH. Yes, we are.

Mr. DICKS. Do you have enough quantity to justify a second source?

Mr. WELCH. I am not certain. Back to your previous question as to the total buy, if you recall when we talked before here the second source involvement was for quality——

Mr. DICKS. We try to get GD off their duff.

Mr. WELCH. You probably summarized it better than I did. The second source qualification is in fact underway. We will fly sometime early in summer the two McDonnell-Douglas qualification missiles and then we will be in a position to start the opportunity for both to bid.

It could go to a buy out at some point in the program. It will be determined by the total number we need.

Mr. DICKS. What is the total cost to develop the second source?

General FERGUSON. That was the $150 million he mentioned.

Mr. DICKS. When will the investment be recouped through competition?

General FERGUSON. Well, we ran the numbers, about 1,200. It is too close to the number we talked about in the inventory. I think you would have to say we would have to recoup it in quality. I don't think we will ever cross over and get more than our money back.

Mr. DICKS. Is there a minimum total program buy which justifies two producers?

General FERGUSON. If you did it analytically, it would be about 1,200.

Mr. DICKS. GAO has raised questions about ACM reliability and suggested that additional flight test are necessary to demonstrate performance. The draft December 1989 Selected Acquisition Report indicates that the current estimate of operational availability is ——— percent compared to a goal of ——— percent, and the air vehicle reliability estimate is ——— percent compared to a goal of ——— percent.

In addition, OSD's operational testers said the reliability of the system as of November 1989 was ———. Expected reliability should have been ——— to be able obtain reliability of ———.

What are the Air Force and contractors doing to improve availability and reliability?

Mr. **Welch**. We will give the answer in two parts. First the number you should keep in mind is the ——— because that is the threshold we have in terms of what the user tells us is what he will accept. The other numbers you told us are goals which are desires on his part. Having said that, we sit today at about ———. We have additional process improvements where the contractor is going to try to eliminate process type failure and also catching them early, stress designing, better end to end testing and that type of thing. We are in the ——— time with about 20 more tests to run. So we believe we are at the point where we can get very close to that threshold.

Mr. **Dicks**. GAO recommended that a DAB IIIB full rate production decision be delayed until uncertainties involving reliability, cost, and production readiness and quantities are resolved. Why isn't this a good idea?

Mr. **Welch**. We don't think it is a good idea. That is scheduled this summer. We believe that the success of the program to date, the fact that we can achieve very close to that threshold reliability and the need for this missile should proceed to full rate production we are in fact at that time that we should proceed.

Mr. **Dicks**. Should there be more testing?

Mr. **Welch**. There will be more testing. We are in IOT&E. There is follow-on testing that goes out through the years. It is ——— before we measure these quantities against which the specification was written.

Mr. **Dicks**. Explain the $500,000 increase in airframe unit cost, to $3.3 million reflected in the 1991 budget request.

Mr. **Welch**. I would like to give you the detail on that for the record. It really has to do, with, if you recall in past years you wanted us to make sure and fix this program we did not lose our contractor base.

[The information follows:]

There is no real increase in airframe unit cost for the baseline hardware missile. The unit cost increased $.5 million from fiscal year 1990 to fiscal year 1991 because 50 of the avionics units for the 100 fiscal year 1990 missiles were procured using fiscal year 1988 funds, per congressional direction to maintain the vendor base. The Air Force is buying only 50 ship sets in fiscal year 1990 and 100 in fiscal year 1991.

In stable procurement conditions, the airframe hardware unit cost (TY$) would have been $3.115 million in fiscal year 1990 and $3.166 million in fiscal year 1991.

Mr. **Dicks**. Thank you, Mr. Chairman.

Mr. **Murtha**. General Ferguson, and Mr. Secretary, we appreciate it. General Bracken is going to stay. We want to congratulate General Ferguson on his third star.

We look forward to working with you and finding ways to trim this strategic and tactical budget.

## MILSTAR

Mr. **Dicks**. Can I ask the general one question? Is MILSTAR still in the budget for 1992?

Mr. **Welch**. For 1992 it is in the Air Force budget.

Mr. **Dicks**. That is what I wanted to know.

## CHEMICAL WARHEAD

Mr. **Murtha**. Mr. Miller?

Mr. MILLER. Speaking of missiles, I am wondering whether we have any missiles that have a chemical warhead.

General BRACKEN. No, sir, not to my knowledge, we don't have any. We have no plans for any.

Mr. MILLER. The missiles that we have, and we have quite a number, they are bedded down somewhere, and I am wondering how many we have overseas compared to what we have in this country?

General BRACKEN. What kind of missiles are you referring to, sir?

Mr. MILLER. Whatever missiles that are in the Air Force inventory and may be moved into various countries that are our allies.

General BRACKEN. The missiles that we have overseas, sir, are of course, the ground-launched cruise missile which we have eliminated from the European environment because of the INF Treaty: These are the only kinds of missiles that we have in place now which are potentially capable of striking another target across the borders of the enemy, and they are being withdrawn from the theater now.

We don't have any long-range missiles that are chemical-capable in the theaters of operation, nor in the CONUS. Basically strategic and nuclear missiles are what we have in the CONUS.

Mr. MILLER. The second question was all missiles, not necessarily the chemical.

General BRACKEN. We don't have any chemical weapons on our air-to-air missiles. The AIM-9, AIM-7 and HARM missiles are all threat specific, the AIM-9, AIM-7 are air-to-air missiles and the HARM would be used to attack radar sites on the ground. They are not chemical capable. The Maverick missile is basically an antitank missile and it is not chemical capable.

The exact numbers we have overseas, I don't have at my fingertips, but we can have it available for the record.

Mr. MILLER. I would appreciate that.

[CLERK'S NOTE.—Classified insert removed.]

### CARIBBEAN BASIN RADAR NETWORK

Mr. MURTHA. Let's talk about the drug situation and the Caribbean Basin Radar Network program.

The Caribbean Basin Radar Network program will provide for procurement of ground-based microwave radar systems for attack warning, control of air defense/tactical forces, air traffic management, and drugs/arms interdiction.

Where is the demand for this radar system coming from?

General BRACKEN. It is a very important radar in terms of developing a network of sensors over the Caribbean to help us detect the inflow of airplanes from the South American region.

Mr. MURTHA. But does it work? For instance, every time we block one avenue of approach, they just move around and take another avenue.

General BRACKEN. There is a whole series of mutually supportive radars in that region that will give us the coverage we need. The Caribbean Basin Radars are the radars that are on the leading edge of the area in which we are trying to pick up the airplanes as they come out of South America.

**Mr. MURTHA.** How many airplanes come out of South America, do you think, per year?

**General BRACKEN.** The projected level of drugs coming out on small airplanes is about ten percent of the total volume coming out of South America.

**Mr. MURTHA.** What would that be in money? Do you have any idea?

**General BRACKEN.** No, sir. I don't have any idea.

**Mr. MURTHA.** Do we know how many we interdicted last year with the warning system we have now?

**General BRACKEN.** I can't answer that question.

**Mr. MURTHA.** It seems to me it was two—was it two airplanes that we were able to detect up to this point?

**General BRACKEN.** I don't know, sir.

**Mr. MURTHA.** We haven't done very well because the price of drugs is about the same and if it were successful, the drug price would be going up.

How many sites will be operational when the full system is implemented?

**General BRACKEN.** Sir, we have a network of six radars that are already in place and are up and operational. The Caribbean Basin Radar Network would provide another nine sites.

For the total system—the six that we had in place already plus the nine that we are buying under the CBRN program, for a total of fifteen radars—eight are operational at this time.

**Mr. MURTHA.** So eight of the nine are operational?

**General BRACKEN.** Yes, plus the six that we already had on line, sir—excuse me—all of the six that we had up for other reasons, they are operational; and then two of the nine that we are buying under the CBRN program are operational now, sir.

**Mr. MURTHA.** Put in the record where you anticipate those radars to be located.

**General BRACKEN.** I have a handout that I can show you.

**Mr. MURTHA.** Is this it?

**General BRACKEN.** Yes, sir.

The ones that are solid color. If you have the chart that says Caribbean Radar Detection, 20,000 feet above sea level, the two in Puerto Rico are operational. The Dominican Republic radar recently became operational. The ones at Guantanamo Bay and Key West are operational. Honduras, the one in Panama and the one in Venezuela, are operational for a total of eight operational. The dotted lines are ones yet to be up. We have host nation agreements signed for four sites and are in the process of negotiating the last three to bring the entire network up.

If you will look at the air defense surveillance chart of that region, you will see how these radars are mutually supportive.

The Caribbean Radar Network provides coverage to the continent of South America. The OTH-B will cover the Gulf. The last line of sensors are a combination of the aerostats and FAA radars that are on the perimeter of the continental United States. We get in-depth coverage from those four systems for the region we are looking at, and the AWACS will fly in that area as well.

[CLERK'S NOTE.—Classified charts removed.]

Mr. MURTHA. How much money are we spending on these?

General BRACKEN. The funding we have for CBRN is $4.7 million in 1988, about $28 million in 1989, $39 million in 1990. We don't have any funds requested in 1991 for the last site, sir.

Mr. MURTHA. Mr. McDade?

General BRACKEN. We added another $23 million in 1990, which I forgot about, so we are spending about $62 million in 1990.

We would have bought out the system in 1991 for $16 million for that last radar; however, we don't have funds requested in the 1991 budget.

### OVER-THE-HORIZON BACKSCATTER (OTH-B) RADAR

Mr. McDADE. Thank you, Mr. Chairman.

General, last year the committee provided just about $200 million in fiscal year 1990 procurement funding for the acquisition of the first Alaskan radar system of the OTH-B. These funds were originally programmed for the second Alaskan radar sector, but cost overruns in the first ARS were about 100 percent. This necessitated the use of both fiscal year 1989 and 1990 funds to cover the cost increase.

The fiscal year 1991 request before the committee of $213 million for the acquisition of the first central radar system of the OTH-B is supposed to provide coverage of the southern approaches to the United States.

Procurement funding for the OTH-B radar has been transferred from the Other Procurement, Air Force, budget to the DOD counternarcotics account beginning with fiscal year 1991. To what extent was the Air Force involved with the decision to transfer the OTH-B funding to the counternarcotics account?

General BRACKEN. We were not directly involved in that decision.

Mr. McDADE. No recommendations in it?

General BRACKEN. As you accurately reflect, we had money in our 1989 and 1990 budget to buy two Alaskan sectors, and we ran into technical problems as well as environmental problems to beddown those radars and it became apparent that the money we had in 1989 and 1990 would only be sufficient to fund one sector in Alaska and that is the way we sent our budget to OSD.

Mr. McDADE. So in the 1991 budget, you requested a continuation of the Alaska sector——

General BRACKEN. No, sir, the delays associated with the 1st Alaskan sector, we opted to continue with our original fiscal year 1991 planning which was for the 1st central sector.

During the OSD review of our budget, Air Force fiscal year 1991 funds were deleted.

We did not resist that decision.

At the last minute, as OSD was constructing the fiscal year 1991 budget submission to send to Congress, the Deputy Secretary of Defense restored funds for the central region sector looking down over the Caribbean and Mexico in the drug budget.

Mr. McDADE. Will you describe the future Air Force role in the OTH-B program with regard to oversight and review of program management and budget execution?

What is that going to be?

General BRACKEN. It is our understanding that the Air Force will continue to manage the program. OSD will return the funds to the Air Force to execute the program for the central region.

Mr. McDADE. You will submit budget justifications, et cetera?

General BRACKEN. OSD developed the justification for the 1991 budget, but we assisted in preparing the documentation.

Mr. McDADE. In the outyears, will you continue to do the budget justifications?

General BRACKEN. It depends upon whether OSD will place it in the drug budget or leave it in our budget. As we speak now, although our 1992 deliberations aren't finished, we intend to buy another sector in the central region. We would carry that in our budget as it stands right now. I am trying to predict the future, but I think that is the way it will come out. We have a program office in being for OTH-B and expect to manage the 1991 program, funded in the drug budget.

Mr. McDADE. According to information we have, the SAR dated November 31, 1989, shows that the procurement funding will not be requested beyond fiscal year 1992.

Are you going to ask for another central OTH-B to be funded with the fiscal year 1992 request?

General BRACKEN. Yes, sir. We are in the last throes of putting our 1992 program together now, and we are under a lot of stress because of the fiscal guidance OSD has given us to comply with. As it stands now, based on NORAD's revised priorities which are supported by TAC, who will be the operator, we intend to fund the southeast sector.

I have prepared a chart for you, sir which shows the NORAD OTH-B configuration. Do you have that available, sir?

Mr. McDADE. Just got it, General.

General BRACKEN. As you can see, we have the East and West Coast fans completed. The chart shows the fiscal year funds we used to procure those sectors. The 1991 budget submission covers the hashed-in area, which is the Southwest sector of the central region. Fiscal year 1989 and 1990 funds will go against the Alaska region, and our intentions are to fund the Southeast sector in the central region in 1992, sir.

Does that answer your question?

Mr. McDADE. Yes.

It is very useful to look at it and to see the shift.

General BRACKEN. We have rotated the fans a little bit.

Mr. McDADE. Maybe we should put this into the record.

Mr. MURTHA. Fine.

[CLERK'S NOTE.—The chart mentioned above was provided for the Committee's files.]

Mr. McDADE. When you look at the map, the thing that jumps out is that the polar group remains unfunded.

General BRACKEN. Yes, sir.

As we adjust our priorities and look at the outyears, we are not stepping away from that sector.

Because of the military utility, we have always planned the two South-looking sectors. There has always been a military utility in those two sectors and the military utility has not diminished. Additionally, and there is the added emphasis of trying to interdict the drug flow out of South America.

Concerning the unfunded sector in Alaska, one of the technical problems we have to deal with is the—you might ask me to say this ten times—aurora borealis—I am a fighter pilot.

The sector that is over the Aleutian Chain is not as dramatically affected by that phenomena as the one that is over the polar region. The polar sector will have a more diminished capability vis-a-vis the one that is over the Aleutians.

Mr. **McDade**. How much does this phenomenon interfere with the capacity of the OTH-B.

General **Bracken**. It depends upon the time of day.

My recollection of that number, sir—if it is wrong, I would like to have the opportunity to change it—I think the performance of that sector over the polar region is about 60 percent vis-a-vis the one that is over the Aleutians, in terms of overall performance.

Mr. **McDade**. Flesh that out for us so we have a better understanding.

General **Bracken**. If that isn't right, I will change it.

Mr. **McDade**. Please do.

You always give us good, accurate answers and feel free to change it.

[The information follows:]

Because of the ionospheric noise created by the Aurora Borealis, the northern, or second, sector of the Alaskan Radar System would exhibit degraded performance when compared to the southern sector which covers the Aleutian Islands. The southern sector, in typical operational configuration, will provide an average Probability of Track Establishment ($P_{TE}$) on a bomber-size target of approximately ——— with a range of $P_{TE}$ from about ———, depending upon ionospheric conditions created by season, time of day, and time of sunspot cycle. This compares favorably to conventional microwave radars, especially considering the extended range of the OTH-B.

$P_{TE}$ in the northern sector will be reduced by ——— with an average of about ——— and a range of $P_{TE}$ from about ——— again depending upon ionospheric and auroral conditions.

Mr. **McDade**. Apparently the DRB, as we understand it, deleted funding for two OTH-B sectors, one of which was the central radar system now being requested in the counternarcotics account.

Is that an accurate statement?

General **Bracken**. No, sir, it isn't exactly an accurate statement.

When we constructed our 1990-94 Program Objective Memorandum we had deleted three sectors. The subsequent DRB disagreed with us and they directed us to put one sector back in.

The three sectors that we deleted were, if you have the picture with the crosshatch, two of four central sectors and the second Alaskan sector in the original construction of the OTH-B, there were two additional sectors in the central region.

Those were the ones that we deleted as well as the Alaskan sector.

The actual DRB direction was to put the Alaska sector back in, and realign the two remaining central sectors to cover the Gulf of Mexico and the East Coast. They did not address reinstating the two central sectors thus supporting our decision to delete the two sectors.

Mr. **McDade**. Can you give the Committee an idea of what kind of capability you are going to look at? You talked about the other net a minute ago. Now we have the OTH-B, military utility as well as counternarcotics stuff. What is that going to do? How is it going to help the country?

General **Bracken**. If we can refer to this chart, the chart that is the air defense surveillance chart for NORAD, it gives a global perspective of how the radars fit together.

The Caribbean Basin Radar is the leading edge of that surveillance window. It is basically constructed for tactical warning and the drug problem.

The OTH-B has military utility as well as utility in detection and tracking for the drug traffic in the Caribbean itself.

As you can see, the CBRN's radar coverage is the OTH-B coverage and we have a void over the Gulf of Mexico, over the Florida peninsula and to the side.

There is a lot of traffic that comes into Miami as well as along the Coast, so we fill in that gap with the OTH-B sector overlapping the East Coast sectors.

That gives you coverage in the intermediate region and for the close-in encounters——

Mr. **McDade**. I look at that area and think of all the traffic that can be in there. You have got a lot of commercial planes filing flight plans—who are you going to worry about?

General **Bracken**. We are going to look at those unidentified tracks that we don't have any air traffic control information on.

Mr. **McDade**. Anybody who doesn't file a traffic plan and comes up on the scope will worry you?

General **Bracken**. Yes, sir.

Mr. **McDade**. Through NORAD, you will try to pass that to the indicting agency?

General **Bracken**. There are two regional operation centers, or ROCCs, for the Caribbean Radar Base Network; one is in Panama and one is in Key West. Those two regional control centers have connectivity to the SOCCs, which are the sector operations control centers for NORAD that are located in the United States.

One SOCC is at March Air Force Base and the other is at Tyndall Air Force Base and the ROCCs feed the information from the CBRNs into those SOCCs.

Basically, main connectivity will go to the SOCC at Tyndall which has connectivity to the one on the West Coast.

The Caribbean Basin Radar Network has connectivity directly to the ROCCs and the SOCC at March Air Force Base which will have connectivity to the OTH-B sector which is crosshatched on the OTH-B chart. Connectivity to the interdicting agency will be at March Air Force Base SOCC which is colocated with the drug $C^3I$ organization right there at March.

March Air Force Base has connectivity to Tyndall Air Force Base which, in turn, has connectivity to the drug facility in Miami. This is how you make your linkages to the law enforcement agencies that will have to do the actual arrest kinds of action or stopping action. All of that information is also fed to NORAD headquarters.

Mr. McDade. General, you have been flying a long time or have known a lot about it. If I was to ask you if I was a guy wanting to evade this thing and get drugs into the United States, can you give me assurances that he wouldn't be able to do that against this system?

General Bracken. None of these systems are infallible, sir, but he will have a difficult time.

Mr. McDade. What would be more difficult for him if this is in place? What would be so difficult for him?

General Bracken. If he is a low flier, the lower you get down the more masking you get; and those bubbles around the CBRN get smaller and smaller. He could get low enough and gap-fly like we do against the enemy's radars when we have to penetrate into Europe or the Pacific area. The same thing applies to our own MARS/FAAR and aerostats along the coast.

That is why we need to use an integrated radar network that will give us an overall system and the confidence that we attain will have a high probability of detection.

With the OTH-B, which has wide area, low level coverage capability plus can bounce down plus the AWACS that can also pick up the kinds of airplanes they will be flying, you have a high probability of detection. That is why I think it is important that we have that entire integrated net in place.

Mr. McDade. Any impacts on a ship?

General Bracken. I think it depends upon the velocity for the OTH-B that is, whether they can see it or not.

Mr. McDade. Put into the record which surface ship it would be effective against.

General Bracken. If he is moving out fast enough and has enough signature, I think you could see him with OTH-B or AWACS.

Mr. McDade. That is very helpful, General.

Thank you very much.

Thank you, Mr. Chairman.

[The information follows:]

The OTH-B radar currently has no capability for ship detection. However, the capability requires only the addition of a software algorithm in the signal processor to increase doppler resolution of slower targets. The prime contractor for OTH-B, General Electric, has developed and demonstrated a Ship Tracker through their Independent Research and Development (IR&D) program. The demonstration was conducted against ships equivalent in size to Soviet Guided Missile Frigates.

Mr. Murtha. Mr. Young?

### NIGHT VISION GOGGLES

Mr. Young. Mr. Chairman, I have several quick questions on night vision goggles. Your request of $6.6 million for night vision goggles will buy how many sets?

General Bracken. Sir, we have a request that is aggregated together for the AN/PVS-7 and 5 goggles used by the ground forces, and the AN/PVS-Ls for air crew application.

We are going to buy about 960 goggles for the ground forces and about 110 for airborne applications which that is about 20 percent of the requirement.

With the 1991 buy for the ground application, we will have bought out about 73 percent of our total requirement—that is including previous years' financing—and in the airborne application, we will have about 88 percent of our total requirement bought out considering prior year application.

Mr. **Young**. Let me make sure I understand—the 960 for the ground force and the 110 for the airborne force, that is your total requirement?

General **Bracken**. No, sir. Our total requirement is 11,500 for the ground version and about 3,300 for the air application.

We have about 7,400 in hand for the ground crews and about 2,800 in hand for the air crew fixed year 1991 pending will add 960 and 110, respectively, and that will bring us up to about 73 percent and 88 percent of the requirement. We plan to buy some more in 1992 .

Mr. **Young**. For the air units, what type of units will be using the goggles? What type of airplanes will they be flying in?

General **Bracken**. Basically, the SOF forces, helicopters and some of our airlift airplanes. We have very little application for them in the fighter force.

We have done some fighter testing, but because of the speed of the airplane, it is like looking through a soda straw and you have a very small envelope to work with, so your margin of error has got to be very precise. The field of vision is actually about 40 degrees, which requires constant scanning to obtain a full field of view.

We are looking at primarily slow movers rather than fighters.

Mr. **Young**. Explain the difference in the type of a goggle to be used for the ground force and the type of goggle to be used by an air crew.

General **Bracken**. The air vision devices are more sensitive to variance lower light levels That is, they are good in low light levels such as overcast starlight. The ground goggles are only good to the equivalent of quarters moon.

Mr. **Young**. Binoculars?

General **Bracken**. Yes, sir, the older version of ground crew goggles are binocular. The newest ground crew goggles are monocular.

The airborne application may not have the distortion that you could have in a ground application. It also has the look-under capability so you can look down to see at the instrument panel in the airplane. It is a better goggle for an airborne application.

Mr. **Young**. Are they binocular or monocular?

General **Bracken**. They are binocular as well, we use the binocular type for the aircrew goggles for redundancy of the imaging tubes. Redundancy isn't as important on the ground. We use the monocular for the newest ground crew goggles for reduced weight and cost.

Mr. **Young**. Are the goggles for the aircrew more expensive than the ones for the ground crew?

General **Bracken**. Yes, sir.

The ground crew goggles are $6,000 a piece and the air crew goggles are $13,000 a piece.

Mr. **Young**. Does it eliminate distortion?

General **Bracken**. It minimizes the distortion as well as provides the look under capability—of course, we have the right kind of lighting in the airplane as well so you don't get a flair-up. If you look through the goggles and you look at lights, you get a kind of blooming effect.

Mr. Young. There is a monocular version available.

General Bracken. Yes, sir, but only for ground crew goggles.

Mr. Young. If it is through R&D yet, but I have——

General Bracken. If, there is one for air we haven't ventured that far yet in our devices, sir. We prefer to look down on it because flying at night with these things is very difficult. You have to consider cockpit lighting, outside lighting and looking from the real world through the device, and that is a phenomena you get that we are very cautious of.

I use an analogy of the LANTIRN program, the field of view that we have upstairs. You have got a one-to-one scene correlation as you look at the outside world looking into a HUD FLIR imagery and back to the outside world. If you have a two-to-one magnification and back out again, you can get disoriented quickly.

Flying at night is difficult; that is why we have paid a lot of attention to it. When the crew member is looking through the devices, if he has one eye looking at the real world with any available lighting and the other eye looking through a monocular kind of device, he can be disoriented very quickly.

Mr. Young. The monocular was one that the pilot uses both eyes, but he only has one lens rather than two barrels, which is even better.

General Bracken. Yes, sir; it is.

Mr. Young. What has been the safety record for the Air Force special operations force pilots who are using and training with these devices?

General Bracken. We have had a very good safety record. We have had only four night-time accidents involving airplanes and helicopters that are modified to use the goggles.

There have been four accidents in a ten-year period and in none of these accidents have the goggles been a primary cause of the crash. It has basically been other reasons such as pilot error. Now, to sit here and say to you that they may not have contributed, I don't think would be a fair answer to you.

As I mentioned earlier flying with these goggles and looking through basically a soda straw, you have got a very, very narrow envelope to operate under and your margin for error is very condensed vis-a-vis the outside world. So I think that it may have been a contributing factor, but it certainly wasn't a primary cause of the accident, sir.

Mr. Young. I have one additional question. The early model of night vision for pilots was one you described where you used the one eye with the device and the other eye was in its natural mode. Are you still using those?

General Bracken. We don't use the ground devices in the air. I think the Army might, but we don't use them——

Mr. Young. You have never used those in the air?

General Bracken. No, sir. We may have looked at them in the testing phase of the program, but because of distortion problems, the field of view and the ability to look under, we don't let them use the ground model.

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Mr. **Young**. I don't see how anybody flies with those. I tried and couldn't.

General **Bracken**. It is a tough and demanding mission, sir.

Mr. **Young**. Thank, you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller?

### FUNDING FOR TEST EQUIPMENT

Mr. **Miller**. You have a request for $68.4 million to procure electronic calibration and test equipment. That is in your statement.

My question is whether that is to be used at the Aerospace Guidance and Metrology Center at Newark Air Force Base in Ohio?

General **Bracken**. Sir, basically the programs that we fund in that test equipment line are for the Air Force at large. We have a series of precision measurement equipment labs around the world that we provide standards for so that they can calibrate the instrumentation and the components on the airplane, whether electronics or mechanical devices and Newark supports that worldwide operation.

There is about—of that number that you referenced—there is about $3 million in our 1991 request that is specifically for the Type I lab that Newark possesses. They have to maintain the auditable standards that are reconciled with the National Institute of Standards & Technology. The $3 million that we have of that $69 million is specifically focused for Newark's capability to keep their Type I lab current with the current technology, sir.

Mr. **Miller**. Three million dollars for Newark—and that is the type of equipment that would be more sensitive than what they have now in order to calibrate finer——

General **Bracken**. And in order to keep up with the technology.

Mr. **Miller**. Thank you, General.

Thank you, Mr. Chairman.

Mr. **Murtha**. Any other questions?

Thank you very much, General Bracken. You can go back to flying the F-105s——

General **Bracken**. F-111s, sir.

Mr. **Murtha**. We will have other questions for the record. The Committee will adjourn until 10:30 a.m. Wednesday, April 18th.

[**Clerk's note**.—Questions submitted for the record and the answers thereto follow:]

### AMRAAM MISSILE

*Question*. What is the latest mean-time-between-failure figure on the captive carry testing.

Answer. We have accumulated 1200 hours during the Captive Carry Reliability Program Stage 3 and the testing continues. During this period, we have experienced 11 anomalies. Corrective actions have been identified for seven of these anomalies and incorporated in all tests and subsequent production missiles. All but one of the remaining items center on a single component. Corrections are under investigation for that and the other remaining component. As of 27 April 1990 the Mean-Time-Between-Maintenance (MTBM) is 104 hours.

*Question.* When do you expect reports from the red teams established to examine the program after the recent spate of test failures?

Answer. The teams reported to Mr. Betti, USD(A), at the 11 April 1990 Defense Acquisition Board review.

*Question.* How do you explain the program increase of $616 million for revised economic escalation indices and $1.963 billion for estimating methodology adjustments reflected in the latest Selected Acquisition Report?

Answer. The DOD inflation indices changed in January 1990 based on revised OMB inflation projections and DOD outlay patterns. The new inflation indices represent a substantial increase and when applied to the December 1988 SAR baseline, result in the $616 million economic adjustment.

The $1.963 billion estimating change represents an estimate update using curves which more closely represent the median experienced by similar missile programs and a decrease in the estimated competition savings from approximately 20 percent to approximately 7 percent. These changes were precipitated by program experiences on the first three lots of production which competition has not yet impacted.

*Question.* What is the latest schedule for a Defense Acquisition Board IIIB full rate production decision?

Answer. The Defense Acquisition Board (DAB) reviewed the AMRAAM program on 11 April 1990 to assess the program status and formulate a recommendation on the Nunn-McCurdy Congressional certification. In his ensuing 13 April 1990 Acquisition Decision Memorandum, the Under Secretary of Defense for Acquisition directed a formal corrective action and reliability improvement plan. The Conventional Systems Committee Chairman will form a DOD group to review the plan and provide recommenations to the DAB Chairman. The plan was submitted on 15 May 1990 and is under review. After the review of this plan, a new IIIB date will be considered when all the prerequisites are complete.

*Question.* With the lessened threat in Europe, budget constraints and Navy nervousness about the program, isn't it likely that the 24,000 missile inventory objective will be reduced substantially?

Answer. Given December 1989 DAB direction, the Air Force and Navy have been tasked to review current inventory objectives. In the process of that review, the Air Force believes that the missile inventory will be reduced. Both services will address any adjustments in the fiscal year 1992 POM and the milestone IIIB DAB.

*Question.* Is the Air Force presently conducting a review of the threat and the objective?

Answer. Yes. In accordance with regulations governing preparation for the DAB IIIB decision, the threat will be revalidated and corresponding inventory objective reassessed.

## TACIT RAINBOW

*Question.* The Tacit Rainbow program, which received no procurement funding in fiscal year 1990, is looking for $227.4 million for fiscal year 1991. During the past year, the Navy has backed out of the program. The Air Force inventory objective for this program has changed for three years in a row. Why can't the Air Force decide how many Tacit Rainbows it needs?

Answer. The Air Force has changed its inventory objective during this time period and for good reasons. The first change was driven by our decision to meet our requirements with an all air launch inventory rather than a mix of air and ground launch systems. This decision increased the Air Force's air launch requirement significantly. The second change was driven by a requirements scrub we did at the request of the Vice Chairman of the Joint Chiefs of Staff with extensive input from all of the Combat CINCs. This refinement of the requirement increased our overall objective by approximately 2,500 missiles to ———. This increased requirement was validated by the Joint Requirements Oversight Council in June 1989.

*Question.* Is the latest change an attempt to raise the quantity to justify keeping the program going with one Service?

Answer. Absolutely not. In fact, the latest requirements scrub, which was sponsored by the Vice Chairman of the Joint Chiefs of Staff, started in December 1988 and concluded with a briefing to the Joint Requirements Oversight Council in June 1989. Our first indication of the Navy's intent to withdraw came in April 1989. We did not consider the Navy's position final until the Secretary of the Navy reaffirmed his decision not to rejoin the Tacit Rainbow program in a memo to the Under Secretary of Defense (Acquisition) in December 1989.

*Question.* Update the Committee on test results since last year and remaining IOT&E testing which must be accomplished prior to an LRIP decision.

Answer. We have completed 12 of the planned 25 flights in our combined DT&E/IOT&E program. The most recent test was conducted on March 8, 1990. Seven of these flights were launched from a B–52, the remainder from an A–6. Six of the 12 flights achieved all development test objectives (including terminal accuracy), five flights achieved major portions of the development test objectives, and one flight was a total failure. Thirteen additional flights are planned prior to the LRIP decision; we will emphasize IOT&E objectives during the last ten flights.

### PEACEKEEPER RAIL GARRISON

*Question.* Both the GAO and DOT&E have identified the Peacekeeper Rail Garrison as a highly concurrent program and it's getting more so. The first flight test is now scheduled for the third quarter of fiscal year 1992, a slip of about nine months. The initial and full operational capability (IOC/FOC) dates have recently slipped six months to December 1992 and December 1994, respectively. Yet the fiscal year 1991 budget requests about $1.3 billion in procurement funds. How many trains does the Air Force plan to buy before any flight testing is conducted?

Answer. The entire Peacekeeper missile combined development testing and initial operational testing program is already complete. Therefore, there is no question about the missile's ability to perform in flight. The basing verification missiles (BVMs) will demonstrate that mobile basing does not adversely affect the missile and that missile launch does not adversely affect the train, tracks, or railbed. The BVMs will confirm earlier mobility testing of the guidance system and live fire ejection tests from train-borne canisters. The current schedule will have nineteen missile trains on contract before the launch of the first BVM. Components for approximately three trains will be in various phases of receivership prior to the first BVM (3Q CY92). The first train will not enter assembly and checkout until August 1992—after the first BVM launch.

*Question.* The 1990/1991 budget submitted in January 1989 included $823 million in command and launch equipment for 5 missile launch cars and $347 million for support costs for the 1991 program. This year those amounts have changed to $655 million for 14 launch cars and $503 million for support.

With changes of this magnitude, how do you convince Congress that the program is sufficiently stable and mature to proceed in to procurement?

Answer. The budget submitted in January 1989 was based primarily on the information we had at DAB II (May 1988) and did not include the program baseline at the System Design Review (SDR). Since then, we have completed SDR and Program Design Review (PDR), adding maturity to the program's requirements and overall content.

The January 1989 quantity of 5 units reflected operational missile launch cars (MLC). We were going to contract for 14 units total: 5 operational units, 4 training, 2 testing for Vandenberg AFB, 1 testing for Hill AFB, and 2 operational spares. In the January 1990 P-series, we listed 14 units, all operational MLCs. The remaining MLCs for testing, training, Vandenberg AFB, and Hill AFB were coming from the Research and Development (R&D) assets. The 2 operational spares were moved to the fiscal year 1993 buy. Bottom line is the dollars on both documents actually equate to a buy of 14 MLCs in fiscal year 1991. The decrease in overall cost is due to more defined requirements as a result of continued R&D.

Rail Garrison does not develop any new or push any existing technology. It integrates an off-the-shelf, highly successful missile into a transportation mode which has carried this size and weight of cargo for decades. All testing to date has been highly successful. We have proven our ability to eject a missile from a real car without inhibiting its mobility. We have done extensive land navigation testing on the AIRS guidance system and have "flown" the guidance system of 14 rocket sled tests, all indicating that we can achieve the accuracy requirements for the system.

## ADVANCED CRUISE MISSILE (ACM)

*Question.* The inventory objective for the advanced cruise missile is 1,461, with operational integration required on the B-52H and B-1B. What part of the objective is for B-52s and what part for B-1s? Since the Air Force apparently has no intention of complying with congressional direction to finish B-1B/ACM integration testing at this time, why can't the inventory objective be reduced?

Answer. The 1,461 missiles were procured for operation on the B-52H, with suitable spares. Our direction has consistently been to develop and procure missiles for B–52H operation and to integrate the missile for potential later B–1 carriage. Because the B–1B has no current operational requirement as a cruise missile carrier, integration is being deferred until lead time away from operational requirement.

*Question.* After several failures and the denial of procurement funding in 1989, the FSD test program finally registered six successes, allowing fiscal year 1987 funding to go on contract. Now we understand a new problem has arisen in the fuel bladders which is causing leaks during transportation.

What are the details of this issue, and how serious is it?

Answer. Fuel pressurization bladders which have passed all levels of contractor pre and post installation tests developed pinhole leaks during vehicle shipment of the pre-operational missiles to K.I. Sawyer. These pinhole leaks have no operational impact to flight capability of the ACM. The problem the Air Force was having was within the storage and ground test areas from the fumes which were vented from the missile.

The problem was caused when the bladder was shipped within the vehicle in a folded condition. The moving action within the folds caused the pinhole leaks, which permitted a very small amount of fuel to seep into the pressurization bladder.

Corrective actions have been implemented. General Dynamics/Convair has received six of the new B–52 type pressurization bladders and the assembly line has restarted.

*Question.* How is the second source development coming along?

Answer. McDonnell Douglas has been progressing very well over the past six months. Transfer of necessary technology is complete as is the construction of the production facility and the installation of manufacturing equipment. Qualification missiles are being assembled at this time and demonstration of all required manufacturing processes will be completed by the end of April. McDonnell Douglas delivered their first test vehicle to the Air Force in May 1990 and is progressing well toward the second test vehicle being ready in July 1990.

*Question.* How far behind schedule is the second source contractor?

Answer. Due to problems with production of the highly critical wing, McDonnell Douglas fell behind their original schedule by about 4 months. Wing production is now satisfactory. However, even after they deliver their first test missile, they will have to wait about 2 additional months before they can begin launch tests.

*Question.* The General Accounting Office has raised questions concerning ACM's reliability and suggests that additional flight tests are necessary to demonstrate performance. The draft December 1989 Selected Acquisition Report indicates that the current estimate of operational availability is ——— percent compared to a goal of ——— percent, and the air vehicle reliability estimate is ——— percent compared to a goal of ——— percent.

In addition, OSD's operational testers said the reliability of the system as of November 1989 was ———. Expected reliability should have been ——— to be able to obtain reliability of ———.

What are the Air Force and contractors doing to improve availability and reliability?

Answer. Based on flight and ground test parameters, the missile is currently demonstrating a ——— reliability and improving toward a mature value of ———. We are still in flight test and may experience additional missile failures as we grow the reliability toward its mature value. However, even at the mature value, the mathematics predicts a ——— chance of flight failure—a substantial improvement over other systems. The "suggestion" that additional flight testing is necessary is inherent in reliability growth for all programs and not out of the ordinary.

Some of the initiatives aimed at maturing at a faster rate are as follows:

(1) Production Guidance Sets receiving identical stress screening as current flight test vehicles.

(2) Additional screening to be incorporated in other avionics for new builds.

(3) Continuing functional ground testing.

(4) Enhanced Reliability Confidence Testing to verify threshold reliability of major electronic components.

Availability is a function of reliability and scheduled maintenance down times. Actions to enhance availability are:

(1) Engine recertification extended to 90 months versus 60

(2) Pyro life extension program initiated to eliminate 60 months pyro change outs

(3) Sensor scheduled maintenance extended (5 years to 15)

The ACM is maturing toward a reliability of ——— well beyond that of the current ALCM ———.

## PEACEKEEPER IN MINUTEMAN SILOS

*Question.* A total of $672 million is requested for Peacekeeper in Minuteman Silos, including $342.3 million for propulsion, an increase of $43.5 million above 1990. What accounts for the large increase in the propulsion line?

Answer. Included in fiscal year 1991 are costs to cover requalification of a new source for aerospace grade carbonized rayon. When the P-series documentation was prepared, we anticipated that the fiscal year 1991 cost to requalify would be approximately $38 million. In addition, we planned for a decrease in the contractors overall business base, which we have already experienced, which caused an increase in the indirect rates allowable on Peacekeeper contracts. These effects, when taken together, caused the $43.5 million increase in the propulsion estimate from fiscal year 1990 to fiscal year 1991.

*Question.* Why is it necessary to requalify a new source for propulsion at this time?

Answer. It is necessary because the sole source of aerospace grade rayon was AVTEX, Inc. AVTEX went out of business in January 1990. Rayon is the primary material in nozzle/exit cone manufacture. Therefore, a new source must be qualified. All U.S. rocket programs were affected, and NASA with the U.S. Navy have taken the lead on the requalification of another source. North American Rayon Corp. was identified as the source. However, recently (March 9, 1990) an alternate rayon source (BP Chemicals (Hitco)) is taking steps to produce the rayon. Qualification to mil spec will still be necessary no matter who the vendor is.

*Question.* One year ago, the Air Force was estimating it would need $253 million in fiscal year 1991 for reentry systems, this year's estimate for fiscal year 1991 is $82 million. How is this possible?

Answer. The decision not to allow deployment of more than 50 Peacekeeper missiles in any basing mode has driven down the costs for fiscal year 1991. Prior to this, the budget input was based on a 235 missile buy with 100 deployed. Now, the fiscal year 1991 input reflects a 173 missile buy with 50 deployed. Fuses and test assets are still being procured in fiscal year 1991.

*Question.* Why do you support costs increase by more than 60 percent in fiscal year 1991?

Answer. The largest percentage of increase is within logistics support costs for fiscal year 1991 ($10.7 million) vice 0 in fiscal year 1990. This is due to the Peacekeeper guidance system not achieving its planned reliability, therefore more support is required in fiscal year 1991 for the 50 deployed missiles. Specifically, funding is for Logistics Engineering Support, seven electronic checkout test sets (ECTS), and 45 Missile Guidance and Control System (MGCS) shipping containers.

## MAVERICK MISSILE

*Question.* Two years ago the Air Force inventory objective for Maverick missiles was 60,664 and annual competition between two sources until 1997 was the acquisition objective. Last year the inventory objective had been reduced to 23,496 and the acquisition strategy was changed to a winner take all three year multiyear production contract buyout. This year the inventory objective has been revised downward again to 19,733 and 1990 is envisioned as the last year in a buyout. What does this say about Air Force requirements determination? Explain the rationale behind the new strategy.

Answer. The requirements determination process has not changed. The process is level-of-effort based on the target threat base. There is no "new" strategy as you put it; rather, the target/threat base is changing. The armor threat in Europe is decreasing while the defenses are being pulled back to support harder, point targets. These changes, coupled with a constrained fiscal environment, high Maverick workload, and Sensor Fuzed Weapon fiscal year 1992 LRIP has driven the DOD to cancel the Maverick buy after fiscal year 1990 and look at putting these scarce resources into more modern weapons systems which offer our warfighting CINCs with an improved capability.

*Question.* Information supplied to the Committee indicated one reason for terminating Maverick is the less tense environment. If the new environment is affecting Maverick, why isn't it also affecting other missile program objectives?

Answer. It is not entirely accurate to state that Maverick quantities are being reduced because of a less tense environment. Indeed, decisions on quantities of any type of weapon assume some level of risk. What we are saying, is that when we consider the reduced armor threat in Europe, SFW coming into the inventory in fiscal year 1992, the inventory of Mavericks we do have and will have in fiscal year 1992, the ability of SFW to offer multiple kills per pass vs. Maverick's one kill per pass, and the need to provide the warfighting CINCs with the preferred munitions, then cancellation of Maverick after the fiscal year 1990 buy is a risk we are willing to take.

*Question.* If Maverick is terminated, how many years production gap will occur until the sensor fuzed weapon comes on line? Hasn't a procurement milestone for the SFW recently slipped by a year?

Answer. SFW LRIP is planned for the first quarter fiscal year 1992 and hence there will be a quantity of SFWs beginning in fiscal year 1992. Maverick does not stop production until the fourth quarter fiscal year 1992. Hence there is no production gap planned.

*Question.* How much would it cost to maintain one producer in 1991 at a minimum sustaining rate?

Answer. There is not a simple answer. Neither Hughes nor Raytheon have provided the Air Force with any information of this type. Further, we cannot ask them at this time because we are selecting between them for a source to complete the inventory production and such an inquiry would breach the rules for conducting source selection. However, we can provide our estimate.

Hughes: 150 missiles per month ($85–$95K per unit)

Raytheon: 105 per month ($85–$95,000 per unit)

Please understand, however, that the minimum sustaining rate might by only 1 missile per year. We would have to also pay to keep the work force employed. Therefore, the real answer lies in how many missiles we were directed to procure and what we are willing to pay for them.

## AGM–130 (POWERED GBU–15)

*Question.* After being terminated by the Air Force two years ago, the AGM–130 program has experienced successful test results and has been included in the procurement request for fiscal year 1991. In addition, a 1990 reprogramming request of $32 million for 28 missiles is planned.

Briefly summarize the Development Test and Evaluation (DT&E) results and Initial Operational Test and Evaluation (IOT&E) test results.

Answer. *DT&E.* Ten launches were conducted August 1987 to April 1989. After three out of the first four launches failed, the program became a success with direct hits in five of the last six launches. The first launch was not successful due to insufficient autopilot gain margins. During the third launch a safety switch failed preventing the rocket motor from firing. A GBU–15 common part, a relay, failed during the fourth launch. The next five launches were complete successes. During the last launch the safety switch that failed during the third launch failed again preventing the rocket motor from firing. The safety switch was redesigned for IOT&E (the new design never failed during IOT&E).

*IOT&E.* Nine launches were completed June 1989 to January 1990 in this successful IOT&E program. Six of the nine launches were direct hits. The second and seventh launches missed the target although the weapons worked well. On the second launch, the Weapon System Officer (WSO) guided on a point below the prebriefed aimpoint. On the seventh launch, the WSO transitioned into the terminal phase late. The fifth launch was unsuccessful because a data link component failed resulting in loss of control signals to the missile.

*Question.* Why is it taking so long to get the reprogramming document submitted?

Answer. OSD determined some of the initial sources for the reprogramming were unacceptable. Resourcing has been completed; the reprograming has recently been resubmitted to OSD.

*Question.* What effect would approval of the reprogramming late in the fiscal year have on the 1991 program?

Answer. The actual date that fiscal year 1990 funds are made available by Congress will affect two fiscal year 1991 program variables. First, missile delivery date for the first fiscal year 1991 missile (presently planned to be 19 months after contract award) would have to be increased by the number of months the fiscal year 1990 program start is delayed. For example, the fiscal year 1990 start was assumed to be March 1990. If the actual start data is June 1990, the first missile delivery for fiscal year 1991 would be changed from 19 to 22 months. The second variable the actual availability date of the fiscal year 1990 funds will affect is monthly delivery rate. The present monthly delivery rate for the fiscal year 1991 program starts at 5 per month and builds slightly to 6 per month—delivery occurs over a 12 month period. If first missile delivery changes from 19 to 22 months, only 9 months remain for fiscal year 1991 missile deliveries; therefore, the delivery rate would have to be 7 per month. To insure a low risk monthly delivery rate/rate buildup, the delivery rate needs to stay in this range. To summarize, a reprogramming late in the fiscal year would affect fiscal year 1991 first missile delivery and our planned monthly delivery rate. In this way, perturbations to the fiscal year 1992 program can be avoided. The actual effect on these variables cannot be calculated until the availability date for the fiscal year 1990 funds is known.

*Question.* Has the inventory objective of 4,048 changed at all in the past two years?

Answer. The inventory objective has not changed during the last two years.

*Question.* How many of the targets for the AGM-130 are located in East Germany and other Warsaw Pact countries?

Answer. The AGM-130 is targeted against high-value, fixed targets. ———. We continue to review and update this data on an annual basis to account for changes in the world environment.

## SHORT RANGE ATTACK MISSILE (SRAM) II

*Question.* The SRAM II is planned to be carried on the B-1B and B-2 bombers. The Air Force plans to buy 1,633 missiles at a total program acquisition cost of about $2.3 billion. The first live launch has been delayed about seven months because of development problems with the rocket motor. These problems have also caused the initial operational capability date to slip from April 1993 to the third quarter of fiscal year 1994.

If the number of B-2 bombers is reduced, how will this affect the number of SRAM II's required?

Answer. All SRAM II's procured through fiscal year 1995 can go on the B-1B to fully load them. Procurement quantities after fiscal year 1995 would be adjusted to meet actual requirements.

*Question.* About $20 million in procurement funds are requested in the fiscal year 1991 budget. What is the amount for and, why are procurement funds needed now considering the slippage in the program?

Answer. $6.4 million is needed to support long lead for 75 missiles and second source qualification. The contract states that these funds will be executed upon completion of the eighth launch scheduled for the fourth quarter of fiscal year 1991. Therefore, to meet this contractural obligation, funds must be available in fiscal year 1991. If not, sole source contract negotiations must take place and will likely cause an estimated increase of $140-$150 million.

$14.8 million is needed for peculiar support equipment and DOE W-89 warhead trainers. This is required in fiscal year 1991 to support fiscal year 1993 nuclear certification.

*Question.* If B-1B production funds for SRAM II integration are not provided, what effect will this have on the number of SRAM II's required?

Answer. Since there is a firm operational requirement to equip both B-1 and B-2 with SRAM II missiles, the number will not change; only the availability date will slip. (Note: any reduction of SRAM II production will increase SRAM-T production cost due to economies of scale.)

*Question.* Given the changes which are happening in Europe, is there still a need for SRAM-T?

Answer. General Galvin has reaffirmed his requirement for the SRAM-T because it offers the greatest flexibility and operational capability of any nuclear weapon at his disposal.

*Question.* How much of the SRAM II research, development, test and evaluation funding is being provided to the B-1B program office and, what are these funds for?

Answer. $58.1 million is requested in fiscal year 1991 for B-1B/SRAM II integration FSD. This is to continue the SRAM II testing and B-1B integration at Edwards AFB. The flight test program began in November 1989.

### SEA BASING THE MX MISSILE

*Question.* Retired Admiral Thomas Moorer, formerly Chairman of the Joint Chiefs of Staff, recently has raised an idea he first offered in 1981. That is to base the MX missile at sea. He believes this makes good sense for three reasons: geographic, geometric, and economic.

Are there any technical reasons why sea basing MX wouldn't work?

Answer. There are a variety of technical reasons why it would be unwise to base the MX missiles at sea. The major reason deals with the guidance set. Unlike the current sea-based ballistic missiles that use a stellar update guidance set that remain dormant prior to launch, the MX guidance set requires a fixed or known launch point and continuous operation. Sea-basing is impractical at this time because there is no technically feasible way to insure that the guidance set could be accurately calibrated to the required accuracy.

*Question.* Admiral Moorer maintains there is no substantive reason why Air Force missile crews couldn't launch MX's from Navy ships, do you agree?

Answer. No. We have an acceptable SLBM today. Sea-based Peacekeeper does not pass the test of reason.

*Question.* Has the Air Force or the DOD given any serious review to sea basing the MX in the past 2-3 years?

Answer. No. The Concept was thoroughly evaluated in the late 1970s/early 1980s. It was rejected because of problems with command and control and insufficient accuracy for hard target kill.

*Question.* Do you agree with Admiral Moorer's contention that existing surface ships in the Ready Reserve Fleet could be quickly made available to carry MX missiles and that such ships would be much more difficult to target than MX in the rail garrison mode?

Answer. The Air Force has no comment on the availability of ships from the Ready Reserve Fleet. Regardless of that, we believe that ships operating in international waters would be much easier to localize with trailing ships and/or aircraft than would trains operating within our sovereign territory.

## POTENTIAL FORCE STRUCTURE CHANGES

*Question.* The Conventional Forces in Europe (CFE) treaty will most likely include the withdrawal of some Air Force units from Europe along with their subsequent removal from the force structure. Has the fiscal year 1991 Other Procurement, Air Force (OPAF), budget been structured with the probable force structure change in mind?

Answer. Yes. but we must remember the President's Budget was submitted when neither the CFE treaty commitments nor the associated time line were clearly focused. The Air Force was still determined to wisely budget limited resources and programmed no war readiness material (WRM) vehicle funding in 1991. This prudent action will allow planning for contingencies to catch up with unfolding events. While CFE dictates we take a hard look at requirements, we must remember that the Air Force requested and received funding for only 20 percent of USAFE vehicle requirements in fiscal year 1990, providing no opportunity for "over spending". Similar historic funding shortfalls for other support equipment will allow us to "fine tune" funding for decreasing requirements as they are identified.

*Question.* The Other Procurement, Air Force, account procures a wide range of equipment which are used at almost every Air Force base. Have you evaluated the extent and type of equipment which may become available for redeployment to the U.S. from bases shut down in Europe assuming implementation of the CFE treaty?

Answer. We are constantly responding to the changing environment recognizing the target is moving and on a fast track. Support equipment associated with aircraft being reassigned (as opposed to retired) will move with the aircraft. Anticipating the likely withdrawal of forces and possible reduction in scope of war plans, one can see from the shortage of vehicles (8,565 total) in USAFE, there is a lot of elasticity to absorb and use vehicles in the theater. GLCM vehicles (2200) were re-allocated within Europe last year, but will not be fully redistributed until fiscal year 1991 coinciding with the base closures. Shipping vehicles and other support equipment to the US before filling POS and WRM shortages is undesirable because of the expense on another critical account, second destination transportation (SDT). Before considering shipping vehicles to the U.S., we are ascertaining costs associated with anti-pollution control equipment installation, parts support for foreign vehicles, safety specifications of window glass and bumpers, etc.

### OVER-THE-HORIZON BACKSCATTER (OTH–B) RADAR

*Question.* The Over-the-Horizon Backscatter (OTH–B) Radar is a high frequency radar system which satisfies requirements for tactical early warning of an attack on North America by bombers and air-to-surface missiles. Last year the Committee provided $199.4 in fiscal year 1990 procurement funding for the acquisition of the first Alaskan Radar System (ARS) of the OTH–B. These funds were originally programmed for the second Alaskan radar sector, however, cost overruns for the first ARS (almost 100%) necessitated the use of both fiscal year 1989 and 1990 funds to cover this cost increase. The fiscal year 1991 request before the Committee of $213.0 funds the acquisition of the first central radar system (CRS) of the OTH–B which will provide coverage of southern approaches to the United States. Procurement funding for the OTH–B radar has been transferred from the Other Procurement, Air Force budget to the DOD counternarcotics account beginning with fiscal year 1991. To what extent was the Air Force involved with the decision to transfer the OTH–B funding to the counternarcotics account?

Answer. The Air Force initially included OTH–B funding in their fiscal year 1991 budget request. During the OSD review process, DEPSECDEF directed funding for a Southwest sector to be added for counter narcotics. Consequently, Air Force funding was eliminated.

*Question.* Did the Air Force originally request procurement funding in fiscal year 1991 for the OTH–B radar? If so, for what sector?

Answer. Yes, for the first Central Radar System (CRS) sector. In the fiscal year 1990 President's Budget, the Air Force program was the Southeast and East sectors of the CRS, funded in fiscal years 1991 and 1992 respectively. The SASC directed the Air Force to reevaluate that configuration in the authorization report. The Air Force was evaluating that in conjunction with NORAD when the decision was made by DEPSECDEF.

*Question.* Describe the future Air Force role in the OTH–B program with regard to: Oversight and review of programs management and budget execution. Submission of budget justification materials.

Answer. It is our understanding that OSD intends to return the funds to the Air Force and will expect us to execute the program.

Our program office already exists. Submission of budget justification materials for the fiscal year 1991 budget was accomplished by OSD because the funds were placed in the counternarcotics line. The Air Force provided information to support preparation of the documents.

*Question.* General, who has ultimate responsibility for future attainment of OTH-B cost, schedule, and technical goals?

Answer. The Air Force is responsible for attaining OTH-B cost, schedule, and technical goals.

*Question.* The draft Selected Acquisition Report (SAR) dated December 31, 1989 shows that procurement funding will not be requested beyond fiscal year 1992. Which OTH-B sector will be funded with fiscal year 1992 request?

Answer. The fiscal year 1992 Air Force POM is being finalized. However, based on NORAD's revised priorities, which are supported by TAC, the Southeast sector of the Central Radar System would be funded in fiscal year 1992 if funds are provided. The remaining sectors of the CRS and the second sector of the Alaska Radar System will be addressed as funding permits.

*Question.* Provide for the record the number and geographical placement of all present and planned OTH sectors by fiscal year.

Answer. The three sectors of the East Coast Radar System, located in Maine, were procured in fiscal year 1982/1984/1985. The three sectors of the West Coast Radar System (Operations Center at Mt Home AFB, ID; Transmitter Site at Christmas Valley, OR; Receiver Site at Alturas, CA) were procured in fiscal year 1986/1987/1988. The Alaskan Radar System (first sector) will be procured with fiscal year 1989/1990 funds. The Central Radar System (Operations Center at Grand Forks AFB, ND; Receiver Site at Thief River Falls, MN; Transmitter Site at Amherst, SD) is a fiscal year 1991/1992 procurement (2 sectors, Southwest and Southeast).

*Question.* The cost estimate for the first Alaskan Radar system has almost doubled, requiring the use of fiscal year 1989 and 1990 funds totaling $364.6 million to complete the sector. What is the current status of the acquisition of the first Alaskan sector?

Answer. After receiving Congressional approval for procurement of the first sector in Alaska with fiscal year 1989/1990 funds, the Request for Proposal was rewritten to reflect approved changes and released. The proposal is expected from the contractor during the next two weeks. Evaluation and negotiations with the contractor will take place beginning in late April, with contract signature anticipated in September.

*Question.* Provide the current obligation status of the fiscal year 1989 and 1990 OTH-B procurement funds.

Answer.

[Dollars in millions]

| | Fiscal year 1988 | Fiscal year 1989 | Fiscal year 1990 | Fiscal year 1991 |
|---|---|---|---|---|
| Funding | 113.8 | 159.0 | 193.9 | |
| Obligation (March 31, 1990) | 81.7 | 17.2 | 5.5 | |

*Question.* Provide for the record the new acquisition cost for the Alaskan sector. Provide a cost breakout by major hardware element, site preparation and related military construction.

Answer. Exact costs will not be known until the contract is awarded. Current Air Force estimates and negotiating objectives should not be made a part of the record until the contract is awarded. We are confident that we will award this contract within the $350 million cost for a single sector that we stated during the fiscal year 1990 conference deliberations by committee staff members.

*Question.* What does this decision say about the strictly military priority placed in this particular sector?

Answer. The decision made by the DRB in 1988 reflected the threat priorities and expected capabilities of OTH-B at that time. The results and analysis of the small target test program were not available when that decision was made, and the expectation was that OTH-B would be better suited for full time cruise missile detection. This has not proved to be the case. Additionally, the counter-narcotics mission (Detection and Monitoring) has been added since that time, as a military mission. This mission is an extension of the existing NORAD mission element of controlling access to United States airspace.

*Question.* Is the primary role of the central sector drug interdiction?

Answer. OTH-B is a wide-area, all altitude, air surveillance sensor. Although the OTH-B system was originally sought to satisfy atmospheric Tactical Warning and Attack Assessment requirements, it has obvious application to the DOD counternarcotics mission as well. The inherent surveillance capabilities of the system promote a variety of roles. The primary role of each sector will be situationally dependent upon the perceived threat in that sector. Currently, the illegal importation of drugs through the Gulf Coast outweighs the purely military threat to the United States from the South. If this situation persists upon deployment of the OTH-B Central Radar System, the primary role of the system may initially be counternarcotics surveillance.

*Question.* Comment in general and provide details for the record on the suitability of the OTH-B radar for a drug interdiction role.

Answer. ———.

*Question.* What communications links are planned between OTH-B regional operations control centers and the drug-interdiction command and control network.

Answer. Planning of the drug-interdiction command and control communications arthitecture is a continuing evolutionary process. Currently, OTH-B radar data will be transmitted from the OTH-B Operations Center to the appropriate USAF Sector Operations Control Center. The Sector Operations Control Center forwards selected data on the NORAD Air Defense Operations Center.

The Sector Operations Control Center is the central node in any drug interdiction support communications architecture. The Sector Operations Control Center can receive drug-interdiction information from the NORAD Air Defense Operations Center or US Customs Service/US Coast Guard Command, Control, Communications, and Intelligence centers. Intelligence, threat information, and tasking requests can be passed between these facilities via secure telephone or message.

The Sector Operations Control Center and the OTH-B Operations Center will be configured with data and voice connectivity for exchange of tasking requests, surveillance data, and intelligence information. Due to the volume and complexity of the OTH-B surveillance product, the most feasible communications configuration will route all OTH-B surveillance data to the applicable Sector Operations Control Center. The Sector Operations Control Center will then provide the data to any other interested users. Therefore, no direct data connectivity is envisioned between the OTH-B Operations Center and any law enforcement facility.

### CARIBBEAN BASIN RADAR NETWORK (CBRN)

*Question.* The Caribbean Basin Radar Network Program will provide for procurement of ground-based microwave radar systems for attack warning, control of air defense/tactical forces, air traffic management and drugs/arms interdiction. Funds for this program are included in the "Drug Interdiction" portion of the DOD budget, however, the Air Force is the executive agent for this program. What is the projected level of drugs that has been flowing into the country on small aircraft?

Answer. The complex and mutifaceted nature of the movement of illegal drugs into the United States prevents making a precise projection of the level entering on small aircraft. Further, the direct entry of drugs into this country is only one facet of the concern with airborne drug traffic. A significant portion of the illegal drugs which enters by sea or over land begins as airdrops at sea or as clandestine landings in other countries for transshipment into the United States. The Caribbean Basin Radar Network, together with other ground radars (FAA and National Guard) and airborne radars (AWACS, USCG P3s, and aerostats) will permit detection and monitoring of these flights and provide the information necessary for the successful interdiction by the law enforcement authorities.

*Question.* To what, if any, extent will the Caribbean Basin Radar Network take over the role of some of the aerostats which are carrying out the aircraft drug interdiction role in some areas of the country?

Answer. The Caribbean Basin Radar Network (CBRN) is a multimissioned program. As originally designed, it provides Tactical Warning/Attack Assessment information to Commander-in-Chief of Atlantic Command and Commander-in-Chief of Southern Command, supports interdiction of drugs and arms, supports US forces deployed in the region, and fosters, cooperation with the Host Nation armed forces and governments. The existing and planned CBRN sites form the "outer barrier" for drug surveillance and cooperative interdiction with the Host Nation police or military forces. Due to geographic differences, there is minimal overlap in coverage with the aerostat "inner barrier" being deployed across the Southern border of the U.S. The roles of the two systems are complementary and it is not expected that CBRN will reduce the need for border surveillance provided by the counternarcotics aerostat system.

*Question.* How many sites are you requesting in the fiscal year 1991 budget?

Answer. The fiscal year 1991 request is for one CBRN system representing the last of nine new radar sites in the initial deployment of this system.

*Question.* How many are operational thus far?

Answer. Of the nine new CBRN sites, two are now operational in Panama and the Dominican Republic. A third is scheduled to reach initial operational capability in ——— at San Andres Island, Colombia. The fourth system on the Colombian mainland is also scheduled to reach initial operational capability in ———.

*Question.* For which sites are you requesting funds in the fiscal year 1991 budget?

Answer. The fiscal year 1991 Budget Request is for the single CBRN radar site slated for ——— depending on order in which MOUs are signed.

*Question.* Have all of the "host governments" who would eventually have a radar of the CBRN system on their soil agreed to have the radar constructed on their soil?

Answer. Host Nation Agreements (HNAs) have been signed with the Governments of Dominican Republic, Colombia (two sites), Honduras, and United Kingdom (Grand Cayman Island). The first CBRN site in Panama was constructed on a US Defense Site (Semaphor Hill) and only required Host Nation notification. HNAs for the remaining three sites are approved by the US Government and are awaiting corresponding Host Nation legislative approvals by the Governments of ———.

*Question.* How will the various radars of the Caribbean Basin Radar Network be internetted together?

Answer. The nine new radars of the CBRN will be connected to Regional Operations Centers at Howard AFB, PN, or Key West, FL, along with data from eight other existing radars in Honduras, Puerto Rico (two radars), Guantanamo Bay, Key West, ——— Colombia, and ———. These operations centers will also be internetted so as to share surveillance data and coordinate tracking/interdiction efforts.

*Question.* The Federal Aviation Administration has numerous radars along the U.S. southern coast, and the DOD is planning on constructing an Over-the-Horizon Backscatter Radar which will provide coverage throughout much of the Gulf of Mexico. How will all these systems interact with the Caribbean Basin Radar Network?

Answer. The FAA radars along the southern coast are part of the Joint FAA/Air Force Radar Replacement (FARR) program under the Joint Surveillance System (JSS) and are used to provide air route surveillance/traffic control as well as to provide NORAD target detecting and tracking information to support Tactical Warning/Attack Assessment and U.S. air sovereignty. The CBRN radars provide coverage well outside existing FARR coastal sensors and, along with the FARR sensors.——— Similarly the Over-the-Horizon Backscatter (OTH-B) provides all-altitude coverage through the Gulf of Mexico ———. Tracks of interest from the

CBRN system could be handed off to the OTH-B and, in turn, to the FARR sensors for interdiction in U.S. airspace.

### MILSTAR TERMINAL

*Question.* Fiscal year 1991 is the last scheduled year for Low Rate Initial Production (LRIP) of the Air Force MILSTAR terminals. Twenty-six terminals are scheduled for production as opposed to six in the the current fiscal year.

What is the maximum LRIP rate for these terminals?

Answer. The Air Force is procuring 31 terminals (26 ground terminals and 5 airborne terminals) in fiscal year 1991. This is the maximum LRIP rate of production.

*Question.* What criteria have been established to determine which type of aircraft will receive the initial MILSTAR terminals?

Answer. The Joint MILSTAR Communications Control and Operations Concept, the MILSTAR System Level Initial Operational Capability Definition and aircraft platform availability specify/dictate the order in which aircraft receive MILSTAR terminals. In general, force command and control nodes will receive the initial MILSTAR terminals followed by force elements. Specifically, the CINC airborne command post (SAC's Looking Glass fleet and the Worldwide Airborne Command Post fleet) and the National Emergency Airborne Command Post (NEACP) are first to receive aircraft terminals.

### SAC COMMAND AND CONTROL

*Question.* A total of $68.4 million, an increase of $32 million from the current fiscal year is requested for SAC Command and Control. This program provides for the procurement of systems to provide effective command and control to CINCSAC.

Of the total requested for SAC Command and Control, $33.7 million is for continued upgrade of the Strategic War Planning System (SWPS). The Justification book mentions that the Strategic War Planning System is DOD's only system that produces the SIOP, which targets every nuclear warhead in the US inventory.

What is the total cost of upgrading the Strategic War Planning System?

Answer. The total cost for upgrading SWPS is difficult to determine at this point in time because the SWPS protest has not been resolved; however, the Air Force estimate a total cost of between $85 and $90 million to upgrade the system to incorporate new weapon systems.

*Question.* What are the defects of the current system?

Answer. There are no operational defects in the current system. However, the TRIAD Computer System (TRICOMS) and Strategic Mission Data Preparation System (SMDPS) Phase II require upgrades to produce the nation's only nuclear war plan, the Single Integrated Operational Plan (SIOP).

TRICOMS consists of four main frame computers and associated equipment at Headquarters SAC that is responsible for the force level SIOP planning process. The system allocates weapons against specific targets; deconflicts the timing of all weapon systems and weapons; plans the routing of bombers, tankers, ICBMs, SLBMs, cruise missiles and short range attack missiles; and "mates" tankers and bombers for air refueling

SMDPS Phase II produces Data Transfer Unit Cartridges (DTUCs), which are computer tapes containing bomber aircraft SIOP mission data. Without these tapes no missile can be launched or jettisoned from the aircraft, and gravity bombing accuracy along with navigational capability is severely degraded.

Storage capacity for TRICOMS is currently filled to capacity during the peak SIOP production period. New weapon systems add to the complexity of the SIOP planning process. With the new systems coming on-line in the 1990s, TRICOMS will require upgrades to ensure these systems are fully integrated into the SIOP.

SMDPS Phase II (mid 1970s technology) is rapidly becoming logistically unsupportable and unable to meet all of SACs operational requirements. SMDPS Phase III (Phase II replacement) planned for the 1990s, will meet this planning shortfall.

*Question.* To what extent is the introduction of new weapons systems—i.e., B-2 bomber, D-5 missile on the TRIDENT—bring changes to the SIOP?

Answer. National guidance dictates the majority of changes in the SIOP. Weapon systems that are developed and deployed as a result of that guidance provide the capability to fulfill this national guidance. New weapon systems, however, make the SIOP planning process more complex due to their sophistication and unique operating characteristics. This complexity requires increased automation of the information processed in development of the SIOP.

*Question.* What is the projected timeframe that it will take to complete the upgrade to the Strategic War Planning System?

Answer. Known upgrades to SWPS for new weapon systems are currently projected into the fiscal year 1999 time frame.

*Question.* A total of $6.6 million is requested for Night Vision Goggles. What is the total Air Force requirement for night vision goggles?

Answer. There are two types of night vision goggles used by the Air Force. The PVS-5/7 goggles are designed for ground operations. The second type of night vision goggles is the AVS-6, which is specifically designed for use by aircrews to permit night flying and target recognition. It provides a "look under" capability for the pilot to monitor cockpit instruments. The total requirement for night vision goggles is 11,482 for the PVS-5/7 groundcrew goggles and 3,359 for the AVS-6 aircrew goggle.

*Question.* What types of Air Force units are receiving the night vision goggles?

Answer. The PVS-5/7 groundcrew goggle is used primarily by security police in conducting air base ground defense, counternarcotics and anti-terrorist operations. Other users of the groundcrew goggle include special operations forces, combat controller teams, pararescue, and civil engineering teams such as RED HORSE and PRIME BEEF. The AVS-6 aircrew goggle is sued primarily by Air Force Special Operations Forces as well as some H-3/MH-60 rescue forces, some bomber/tanker units and a limited number of F-15 fighter units.

*Question.* What percentage of the Air Force needs for night vision goggles will be met by the fiscal year 1991 request?

Answer. The Air Force requested 960 PVS–7 groundcrew goggles in fiscal year 1991 which is 23 percent of the remaining requirement. The request for 110 AVS–6 aircrew goggles is 22 percent of the remaining aircrew goggle requirement. Affordability is the primary restriction of any increase to the request.

*Question.* What has been the experience of Air Force Special Operations Forces (AFSOF) helicopter pilots in terms of safety during night time training?

Answer. No Air Force SOF Class A flight mishap has ever been attributed to Night Vision Goggle (NVG) use. Since 1980 Air Force SOF helicopters had 3 Class A flight mishaps while the crews were using NVGs, but none were caused by the use of NVGs. NVGs actually enhance safety and help ensure mission success during night operations.

## MEDICAL/DENTAL EQUIPMENT

*Question.* $84.2 million is requested for modernization and replacement of medical/dental equipment. What portion of these funds are for the initial outfitting for new or expanded health facilities funded in the Military Construction?

Answer. $2.2 million of the $84.2 million request is for initial outfitting equipment.

*Question.* What is the total shortfall of modernized medical/dental equipment in the Air Force? To what extent are those shortfalls met by the fiscal year 1991 request?

Answer. The fiscal year 1991 shortfall is $95 million. The fiscal year 1991 request for $66.8 million for modernization funds 71 percent of this shortfall.

## AIRFIELD ATTACK WEAPONS

*Question.* The Air Force has been developing an air-delivered weapon to attack airfield runways called DAACM. Last year, there was a delay in the program caused, among other things, by a reported change in the assessment of the threat. In last year's report, the Committee directed the Air Force to report on the current threat, results of tests on alternative weapons to meet the threat, and a proposed strategy to meet the short-term and long range threat. When will this report be transmitted to the Committee?

Answer: An updated threat analysis and test results/data analysis will be available for congressional review in the mid to late May 1990 timefrane. The long and short-term airfield attack strategies requested in the Appropriation language will be available in September 1990 following completion of the Air-to-Surface Weapons Roadmap.

*Question.* Describe the threat and how it has changed.

Answer. ———.

*Question.* What is the status of the DAACM program and what are the current milestones?

Answer. The Air Force conducted an Airfield Attack Review in June 1989 following DIA verification of an improved airfield threat. The outcome of this review was the deferral of DAACM FSD pending results of tests of current and alternative concepts against the improved threat.

The directed test program was completed on April 6, 1990. Data reduction and analysis has begun and the results will be briefed internal to the Air Force. Concept selection will occur in June 1990.

The current budget contains funding for an FSD start of an Airfield Attack Munition (AAM) which would be based on the selected concept. The budget estimate for this program is based on the DAACM cost estimate.

*Question.* What alternative weapons are being considered for airfield attack?

Answer. Specific weapons being tested include current and improved versions of the Bomb, Kinetic Energy Penetrator (BKEP), the primary DAACM submunition; current and improved versions of Durandal; 2 prototype improved 500 lb. bombs; the improved 2000 lb. bomb; and Samanta (prototype French runway cratering submunition).

*Question.* The Air Force currently has a French weapon, Durandal, in the inventory. However do you assess Durandal against the current threat?

Answer. ———.

*Question.* What is the possibility that the Air Force will buy additional Durandals to meet short-term requirements against the threat?

Answer. The Air Force has no plans to reopen Durandal procurement at this time.

### 2000 LB. HARD TARGET BOMB

*Question.* Last year, the Air Force projected a fiscal year 1991 procurement budget of $27.218 million for the 2000 lb. hard target bomb. Why are no funds included in the budget as submitted?

Answer. No funding has been requested for this program in fiscal year 1990 and fiscal year 1991 due to problems with the FMU-143/B fuze. Although these technical problems have been resolved, fuze production is lagging BLU-109 case production by seven to eight months. Given this delivery disparity, the Defense Department, after substantial discussion, decided not to request fiscal year 1991 funds until this issue is rectified.

*Question.* What is the overall status of this program?

Answer. The BLU-109/B warhead is in production and this effort will continue through August 1991. As I mentioned previously, the basic FMU-143/B fuze had technical problems which have been resolved. The new FMU-143/B fuze has entered production and deliveries will begin in July 1990. Deliveries will continue through to March 1992 on an accelerated schedule. At that time, we will achieve parity between the bomb and the fuze.

*Question.* What plan does the Air Force have for procurement of this bomb in the future and what impact will the lack of a procurement program in fiscal year 1990 and fiscal year 1991 have on these plans?

Answer. We plan to procure more I2Ks to meet our war reserve requirements and intend to have a fiscal year 1992 production program if fuze and bomb parity is achieved by then. The lack of fiscal year 1990 and fiscal year 1991 procurement programs may have an impact on these plans. However, we believe this can be mitigated.

We are examining ways to ensure no production break between the fiscal year 1989 program and the fiscal year 1992 program. These include below threshold reprogramming and Foreign Military Sales to permit the line to remain in production.

*Question.* What is the inventory objective for the 2000 lb. hard target bomb and how many have been funded to date?

Answer. ———. However, these numbers are subject to change given changes in threat and force structure. As regards how many have been funded to date, there have been 9,346 bombs funded.

*Question.* For the record, provide the delivery monthly schedule for all prior year programs.

Answer. The delivery schedule is:

| Month/year | Bomb cases | Fuzes |
|---|---|---|
| March 1990 | 570 | 0 |
| April 1990 | 570 | 0 |
| May 1990 | 570 | 0 |
| June 1990 | 570 | 0 |
| July 1990 | 564 | 208 |
| August 1990 | 250 | 208 |
| September 1990 | 250 | 208 |
| October 1990 | 250 | 208 |
| November 1990 | 250 | 418 |
| December 1990 | 250 | 418 |
| January 1991 | 250 | 418 |
| February 1991 | 250 | 414 |
| March 1991 | 250 | 428 |
| April 1991 | 250 | 428 |
| May 1991 | 250 | 428 |
| June 1991 | 250 | 428 |
| July 1991 | 250 | 428 |
| August 1991 | 0 | 428 |
| September 1991 | 0 | 432 |
| October 1991 | 0 | 428 |
| November 1991 | 0 | 428 |
| December 1991 | 0 | 428 |
| January 1992 | 0 | 428 |
| February 1992 | 0 | 428 |
| March 1992 | 0 | 428 |
| April 1992 | 0 | 432 |

## COMBINED EFFECTS MUNITION

*Question.* Last year's budget proposed a four-year multiyear contract for procurement of Combined Effects Munition (CEM). This year's budget proposes to use $70 million which Congress added to this program in fiscal year 1990 to buy M1 tanks in fiscal year 1991. What has caused the Air Force to lose interest in this program?

Answer. There are a number of factors that contributed to the decision to terminate the program. The plant explosion in July 1989 definitely had an impact on the fiscal year 1990 procurement. There was concern within the Department of Defense that the production backlog resulting from the explosion and the time necessary to reactivate the line would jeopardize fiscal year 1991 funding. Therefore, fiscal year 1991 funds were not requested. As a result of the fiscal year 1991 decision, we began to reexamine the program. ———.

*Question.* You earlier notified us that it will take you until June to calculate war reserve and training requirements for this munition. How likely is it that your review will cause you to want to buy more CEMs?

Answer. The probability is low because we are forecasting a much smaller force structure. The size of the force structure limits the number of wartime sorties that can be flown which, in turn, decreases munitions requirements.

*Question.* What procurement strategy is being used for the fiscal year 1990 procurement?

Answer. The fiscal year 1990 contract, which was awarded on 30 April 1990, is a firm fixed price contract. The contract contains an option for the $70 million Appropriations Conference plus-up which has not been authorized. The evaluation criteria contain a dual award methodology, but the government reserves the right to execute a single award.

*Question.* If the CEM program is terminated as proposed in your budget, would you put the production facilities in layaway or would you let them wither away?

Answer. Based on our discussions with the Army Single Manager for Conventional Ammunition, it is in the Government's best interest to layaway these production facilities since they may be used on future systems.

*Question.* How much is included in your budget for layaway of CEM production facilities?

Answer. Nothing. The Army Single Manager for Conventional Ammunition will plan and budget for layaway when appropriate.

*Question.* Since other weapons, such as SFW, DAACM, and AIWS will also use CEM's Tactical Munitions Dispenser, what provision is being made to preserve the production base of the TMD until these weapons come into production?

Answer. The DAACM is on hold until all testing is complete, this weapon may not be a concern. The Navy is aware of CEM termination and we are not certain what provisions they have made in regard to AIWS requirements. We understand it will be several years before AIWS enters production. Therefore, the weapon that presents an immediate concern is SFW. We believe we will have a production gap of approximately 18 months between the end of CEM production and the start of SFW production. This gap is dependent upon the amount of funding available for the fiscal year 1990 contract. The Government may have to layaway TMD tooling until it is needed for SFW production. The Army indicates that a significant portion of the equipment is owned by the Government. We recognize that by laying away the equipment, the cost of reactivation will have to be borne by SFW.

*Question.* What is the successor weapon to CEM and when will it enter production?

Answer. There is no successor weapon to the CEM planned at this time.

*Question.* What would be a minimum sustaining rate for CEM in fiscal year 1991 and what would it cost?

Answer. The answer is dependent on whether you are talking about the prime contractors or Kansas Army Ammunition Plant (KAAP). The minimum sustaining rate for the prime contractors is 500 units per month. KAAP's rate is 1,290 units per month. The lowest bid point we have ever asked the prime contractors to bid on is 3,000 units per year or 250 units per month if stretched out to a 12 month period. However, this minimum sustaining rate is not the economic rate nor is it economical to stretch this small quantity over twelve months. The economic rate is 1,000 to 1,200 units per month depending on the prime contractor. As regards the cost, since we did not request fiscal year 1991 funds, we have not asked the Army Single Manager for Conventional Munitions to cost out the minimum sustaining rate. However, we would suspect that the cost would be more than $150 million.

### GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT

*Question.* The Navstar Global Positioning System (GPS) is a satellite-based radio navigation system designed to provide precise worldwide positioning navigation data for military and civil users. The user equipment segment of GPS consists of a variety of radio receivers that convert satellite signals into position, velocity and time for use in navigation and weapons delivery. It is a joint Army, Navy, Air Force program with the Air Force acting as the executive service. GPS user equipment also represents one of the largest ever DOD avionics buys with a total program objective of approximately 27,000 user equipment sets at a total cost of over $4 billion by 1999.

The GPS Receiver has been in low rate initial production (LRIP) since fiscal year 1986 with the low rate initial production contract containing five production options through fiscal year 1989. According to the GAO, the Air Force has exercised all of these production options prior to a June 1990 full rate production decision.

The Committee is advised that over 4,500 GPS receivers have been purchased under the LRIP contract, well exceeding the 2,200 LRIPs quantity approved by the Joint Requirement Management Board. What justification did the Air Force have for exceeding the approved LRIP quantities?

Answer. The Air Force is the executive agent for the NAVSTAR/GPS program. The LRIP situation is complicated—it developed as follows: Milestone IIIA (June 86) stated proceed with LRIP. At that time the LRIP was briefed as 1,995 units to be procured. When the Acquisition Decision Memorandum was published (July 1986) it did not specify LRIP quantities. When the Program Office contacted OSD, they were given as the rule of thumb—LRIP equals 15 percent of the total program (.15 × 27,247 units = 4,087 units in LRIP). Subsequent to IIIA decision, DAB principles and advisors were briefed on the acquisition strategy (August 1986) and at that time LRIP was briefed as 2,006 units. Also briefed was a total of 4,283 units through the fiscal year 1989 buy. Milestone IIIB (full production) was scheduled for March 1989 but has slipped to June 1990. Up to this point fiscal year 1986–88 options had been exercised for a total of 2,006 units in LRIP. Since there was no change in direction on LRIP and DAB principles had been briefed on the acquisition strategy, the Program Office exercised the fiscal year 1989 option bringing total LRIP to 4,267 units. Without this action there would have been a serious break in program production.

*Question.* What criteria did DOD and the Air Force use and what type of analysis did they perform in establishing the original LRIP quantity of 2,200 GPS Receivers?

Answer. At the onset there were two factors: (1) meeting the requirements of the users so user equipment would be available to install during depot maintenance or available to provide directly to the field user and (2) keeping the LRIP quantity at or below 10 percent of the total program which was the rule of thumb at the start of the program.

*Question.* Under what authority did the Air Force exercise the final production option for 1,457 receivers under LRIP that was originally planned for full rate production?

Answer. The acquisition plan had been approved which included the fiscal year 1989 option. The DAB principles had reviewed and approved the acquisition strategy which included the proposed fiscal year 1989 option. The fiscal year 1989 option was initially to be part of the full rate production program scheduled for Milestone IIIB in March 1989. However, Milestone IIIB slipped to June 1990. Since the fiscal year 1989 option was approved as part of the acquisition strategy, the Air Force exercised the option to prevent a break in production and continue to meet user requirements.

*Question.* The Air Force has responsibility for testing the five channel air receiver. Obstacles in completing development testing caused by receiver software and hardware reliability problems resulted in operational testing beginning behind schedule. This led to a decision by the Air Force and the DOD Operational Test and Evaluation (DOT&E) Agency to reduce the time (by 3 months) to analyze and write up operational test reports. According to the GAO, this was done in order for these reports to be available for the June 1990 full rate production decision.

How has the reduced reporting time impacted the Air Force and DOT&E ability to thoroughly analyze the results of operational testing prior to the full rate production decision?

Answer. Initial program schedule allowed time to resolve issues between the services and/or other issues that arose before completing the testing report. No significant issues have arisen which have shortened the time required to do the report. The actual time given Air Force Operational Test & Evaluation Center to complete test analysis and report was reduced by about a week. However this time has been made up and AFOTEC is on schedule to submit the report no later than May 11, 1990, ahead of the 45 days requirement prior to the June 1990 DAB.

*Question.* Will the Air Force have sufficient time to submit a complete test report to DOT&E and the Defense Acquisition Board at least 45 days prior to the full rate production decision (as required by DOD Directive 5000.3) or will you need to request a waiver?

Answer. The GPS full rate production decision DAB is tentatively scheduled for June 26, 1990. The user equipment test report will be submitted to DOT&E on or before May 11, 1990. This meets the 45 day requirement for submission prior to the DAB.

*Question.* Within the reporting timeframes, will DOT&E have sufficient time to prepare a "Beyond LRIP Report" to Congress prior to the DAB?

Answer. The Air Force is not aware of any problems that would prevent DOT&E from issuing their report prior to DAB; however, they would have to confirm when report will be issued.

[Clerk's note.—End of questions submitted for the record.]

WEDNESDAY, MAY 9, 1990.

# AIRCRAFT PROCUREMENT, AIR FORCE

## WITNESSES

**HON. JOHN J. WELCH, JR., ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION**

**LT. GEN. THOMAS R. FERGUSON, JR., PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION**

## INTRODUCTION

Mr. MURTHA. The Committee will come to order.

We are pleased to welcome back the Honorable John J. Welch, Jr., Assistant Secretary of the Air Force for Acquisition, and Lt. General Thomas R. Ferguson, Jr., the Principal Deputy Assistant Secretary for Acquisition.

Today's hearing deals with Air Force aircraft procurement. Gentlemen, if you will summarize your statements we may proceed with the questions.

Mr. WELCH. We are ready to go, sir.

[The joint statement of Mr. Welch and General Ferguson follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: AIR FORCE AIRCRAFT PROCUREMENT

STATEMENT OF: THE HONORABLE JOHN J. WELCH, JR.
ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

LIEUTENANT GENERAL THOMAS R. FERGUSON, JR.
PRINCIPAL DEPUTY ASST SECRETARY OF THE AIR FORCE
(ACQUISITION)

9 MAY 1990

NOT FOR PUBLICATION UNTIL
RELEASED BY THE COMMITTEE ON
APPROPRIATIONS, UNITED STATES
HOUSE OF REPRESENTATIVES

# Biography

# United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

## JOHN J. WELCH JR.

John J. Welch Jr. is the assistant secretary of the Air Force for acquisition. He is responsible for Air Force research, development and acquisition activities, and is the Air Force acquisition executive. He is also chairman of the F-16 Multinational Fighter Program Steering Committee and is the senior United States delegate to the North Atlantic Treaty Organization advisory group for aerospace research and development.

Mr. Welch was born Aug. 23, 1930, in Cambridge, Mass. He graduated from the Massachusetts Institute of Technology in June 1951 with a bachelor of science degree in engineering. He then joined the Chance Vought Corp., Dallas, as a junior engineer on aircraft and missile systems. Mr. Welch held a variety of engineering and program management positions in flight test, missile operations, anti-submarine warfare, advanced programs, and aircraft and missile product development. In March 1965 he became a Ling-Temco-Vought vice president and directed all space defense systems programs. He later became the vice president and manager of all programs and functional organizations at the Missiles and Space Division.

In August 1969 Mr. Welch became the chief scientist for the Air Force and received the Exceptional Civilian Service Award. Upon his return to Ling-Temco-Vought in September 1970, he became vice president of programs for Ling-Temco-Vought Aerospace. In 1974 he became a corporate vice president. He was promoted to senior vice president in 1975 and was responsible for all corporate business development efforts. He assumed his present duties in October 1987 after having been appointed by President Reagan and confirmed by the Senate.

Mr. Welch has held a variety of consultant positions with the Defense Science Board, Army Science Board, National Academy of Sciences Naval Studies, Air Force Scientific Advisory Board, and Air Force Systems Command division advisory groups. He has been a member of the Defense Systems Management College Board of Visitors; MIT Educational Council, and the Center for Strategic and International Studies Committees on Technology Transfer and Defense Futures. Mr. Welch is a registered professional engineer in Texas. He also belongs to several professional, scientific and civic organizations, including the American Astronautical Society, American Society of Mechanical Engineers and the Air Force Association.

Mr. Welch and his wife, Patti, have a son and three daughters.

(Current as of December 1987)

# Biography

# United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

## LIEUTENANT GENERAL THOMAS R. FERGUSON JR.

Lieutenant General Thomas R. Ferguson Jr. is principal deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

General Ferguson was born Aug. 26, 1935, in Cleveland and graduated from Washington Irving High School, Clarksburg, W.Va. He earned a bachelor of science degree in chemical engineering from West Virginia University in 1957 and a master of science degree in metallurgical engineering from Ohio State University in 1968. The general completed Squadron Officer School in 1962, Air Command and Staff College in 1973, and the Industrial College of the Armed Forces in 1979.

He was commissioned through the Air Force Reserve Officer Training Corps program in 1957 as a distinguished graduate. The general received pilot wings at Vance Air Force Base, Okla., and then was assigned to Ellsworth Air Force Base, S.D., where he flew B-52s. His final B-52 missions were flown from Guam in support of Southeast Asia operations.

In August 1968 General Ferguson was assigned to Headquarters 7th Air Force, Tan Son Nhut Air Base, Republic of Vietnam, where he served in several positions under the director of operations. He returned to the United States in September 1969 and was assigned to Air Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio, as a technical manager in the Systems Support Division.

From June 1973 to June 1976 the general served as program element monitor within the Office of the Deputy Chief of Staff, Research and Development, Headquarters U.S. Air Force, Washington, D.C. He then moved to Headquarters Air Force Systems Command, Andrews Air Force Base, Md., as chief of the Flight Vehicle Division, Directorate of Science and Technology. He later served as chief, Avionics and Weapons Division. After graduation from the Industrial College of the Armed Forces in June 1979, the general returned to Air Force Systems Command headquarters as deputy to the director of science and technology.

In October 1981 he returned to Wright-Patterson Air Force Base as assistant deputy for development planning at Aeronautical Systems Division. From August 1982 to July 1984 he was director of the AGM-65 Maverick Missile System Program Office under the deputy for tactical systems. The general then was named system program director for the advanced medium range air-to-air missile, Armament Division, Eglin Air Force Base, Fla. From August 1988 until February 1990 he was deputy chief of staff for technology and requirements planning, Air Force Systems Command headquarters. He assumed his present position in April 1990.

The general is a command pilot with 4,016 flying hours. His military awards and decorations include the Legion of Merit with two oak leaf clusters, Bronze Star Medal, Meritorious Service Medal with oak leaf cluster, Air Medal, Air Force Commendation Medal with oak leaf cluster, and Combat Readiness Medal.

He was promoted to lieutenant general April 1, 1990, with same date of rank.

General Ferguson is married to the former Mary Bird Carder of Clarksburg. They have two children, Ritson and Elizabeth.

(Current as of April 1990)

Mr. Chairman and Members of the Committee: I am pleased to appear before you to review the Air Force's proposed aircraft procurement activities for Fiscal Year 1991.

The aircraft procurement program outlined in this report is based on the United States Air Force Acquisition Program which is designed to provide the systems and equipment needed by our Aerospace forces to implement our basic military strategy of deterrence in the most efficient manner possible. To do this, we must rely as much as possible on our two greatest strengths: well motivated, high quality people and technological innovation. Our aircraft procurement priorities for this budget are:

- Efficient acquisition
- Strategic modernization
- Force Projection
- Tactical Air Modernization

This program has been formulated against a background of political and technological change of unprecedented magnitude. Soviet statements and proposals show remarkable reversals from past Soviet words and actions. The immediate likelihood of a sudden attack in Europe seems to be declining as the Soviet Union focuses on internal problems and Eastern Europe evolves toward democracy. We expect the Soviet Union to remain a major power in Europe and Asia for the foreseeable future. The USSR will remain the only power capable of threatening the very existence of the US. Although we've seen many Soviet declarations of intent to cut its military, actual force structure changes have not been dramatic. The Soviet Union still possesses formidable military capability. Intentions can change overnight; capabilities do not.

In addition to the Soviet concern, there are new, formidable threats on the horizon. The US is facing a world in which high technology military power has come into the hands of a widening circle of nations, many of which maintain arsenals of sophisticated weapons. This new situation manifests itself in regional conflicts that can threaten the security and economic interests of the US and our allies. These regional conflicts are in progress all over the world in places like the Pacific Rim, South and Southwest Asia, the Middle East, Africa, Latin America, and the Caribbean. Consequently, the US must maintain forces that are highly trained, ready, and mobile.

The Air Force budget was painstakingly crafted to keep our aerospace forces on a stable, prudent course for ensuring US security, balancing current readiness and sustainability with future investment. The programs were chosen carefully to continue the modernization of existing force structure while using economical production rates and multi-year contracting to replace older systems. Our budget also reflects termination of low priority efforts that are no longer needed or affordable. In our deliberations we sought a balance among required military capability, program priorities, and budget realities. Our Air Force aircraft procurement programs support the budget priorities described above and are key to maintaining a modern deterrent force.

## STRATEGIC MODERNIZATION

The strategic modernization program, a top Air Force priority, will ensure that our forces are ready, sustainable, and survivable to meet their peacetime and wartime missions. A key Air Force responsibility in this program is to provide for the modernization of the strategic bomber force.

To meet this responsibility, the budget continues the procurement and deployment of bomber modernization programs that are capable of penetrating sophisticated defenses for the next several decades. Deployment of the B-1B assures our most versatile leg of the strategic Triad retains credibility while the B-2 development and production program prepares to fill the long-term requirement. The B-2's unmatched capability to penetrate the most advanced defenses and to complete strategic and conventional missions will serve as a forceful deterrent across the spectrum of conflict well into the next century. The combination of B-1Bs, B-2s, and cruise missile carrying B-52s will present an extremely complex challenge for the defense systems of potential adversaries.

## FORCE PROJECTION

The object of force projection is to get a sufficient quantity of personnel and equipment to the right place at the right time. The Air Force's ability to airlift people, supplies, combat equipment, and medical aid throughout the world on short notice continues to be a fundamental mission of importance. The Air Force will have to be able to respond rapidly in crises because we'll be unable to forecast the warning time, urgency, and necessary force size of these contingencies.

Resolution of our long standing shortfall in airlift capability will be accomplished through the upgrade or modification of current systems and through the development and/or procurement of new systems. Acquisition of the C-27A will provide a small, rugged, short takeoff and landing aircraft for theater airlift. The C-17, vital to modernizing the nation's airlift capability, will assume the responsibility as our primary strategic airlift aircraft, replacing the aging C-141. The C-17 will be capable of transporting troops and a full range of cargo both from the US to overseas locations as well as within combat theaters during conflict. It combines excellent operational characteristics with low life cycle costs.

## TACTICAL AIR MODERNIZATION

Tactical air forces are the most flexible and responsive air component of our military arsenal. They not only rapidly project combat striking power well behind the enemy's forward forces and gain control of the air, but they also support military operations on land and sea. Modernization of our tactical forces is being pursued through a number of programs. We will continue procuring F-16s while developing the Advanced Tactical Fighter and, with the Navy, the Advanced Tactical Aircraft. To maximize the capabilities of the force, the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN) is being deployed and a variety of new munitions are being developed and procured. New munitions like AMRAAM and AGM-130, covered under our Missile Procurement line, will arm our forces with several new and improved capabilities in air-to-air and air-to-surface roles.

The activities I've presented here today represent a carefully balanced program. Sustaining efficient production and economical production rates can maintain the balance if stable funding backs it. We are committed to support these activities, and ask for your support.

Thank you, Mr. Chairman, for the opportunity to make this statement. We will be happy to answer your questions.

### MAJOR AIRCRAFT REVIEW

Mr. MURTHA. Secretary Cheney was over here the other day and informally briefed the Committee about what the situation is concerning the Major Aircraft Review.

I am sure you just learned his decision prior to that, so you haven't had that decision for very long, but can you go over that and tell us exactly how you are handling the new approach?

Mr. WELCH. Okay. We went over some of the background details, as you recall, in the R&D hearings. But as far as the procurement, and what we need to do now, I think Secretary Cheney said the B-2 and the C-17 profile and total quantities changed in the near years and presented the Committee his best estimate of the program at the time. I think he was very sensitive to the large impact that it could have, even in the stock market and other places, so it was held very, very closely.

We are in the process now of working with our program directors and with the contractors to go back and formulate that program now so we can get the necessary contract details and proposal details to be able to support not only the 1992 and outyears, which are being considered this summer, but we will have to come back and give you the details of whatever rollback there might be into your considerations here for 1991 and, in fact, perhaps even back to 1990.

Mr. MURTHA. Talk about the implications for the industrial base. For instance, when we were in the conference, there were so many programs that Northrup, in particular, was involved in and somebody said to me, "Are you trying to put Northrup out of business? Of course, we are trying to judge each program on its merits and sometimes we don't even realize who is building the system.

Tell us what you see. Is there any company in particular that could go out of business? Is there any one that is absolutely essential to our national security and does work that nobody else does and does this change have any impact on the possibility of the companies going under?

Mr. WELCH. Sir, I think that it is a broader look that we have to take and that is going on right now.

If you look at the total changes, not just the changes in the major aircraft reviews, the broader changes that will come about because of reduced force structure, in the near term, very definitely will impact the prime contractors who are involved, in the B-2 and the C-17, and to a somewhat lesser degree in the ATF——

Mr. MURTHA. Give us a comprehensive picture for the record so we could get a feel for which of these programs, for instance, if the B-2 and Tacit Rainbow were stopped Northrup would be in trouble, I would assume.

If you see any other programs that would cause a major problem and then the implication of them going under, I think it would be important for the Committee to understand.

[CLERK'S NOTE.—The answer was provided for the committee's files.]

Mr. WELCH. The area that is more difficult to get a handle on, but perhaps the more significant is all of the first and second tier suppliers to these prime people are probably in more of a difficulty, both short and long term, because they obviously respond quicker to the kinds of changes that are made.

As you make a major change across the industry, all of the decisions in forward pricing agreements that were made are based on a planned outyear base.

Now that is dramatically changed and again not just by the major aircraft reviews, but by the fact that we are obviously going to have a significantly smaller budget and the pace of programs is going to be significantly slowed.

Mr. MURTHA. And Mr. Cheney said in the informal meeting that he had always been for competitiveness and buying at the rate most economical, but obviously now we are going to have to have an additional consideration of industrial base and that is why the answer to your question is so important.

Mr. WELCH. The good news is that I think we have always planned our programs at very, very high rates on the idea that the faster you buy the lower the total program cost. Now, upfront, before people have made the capital investment to get to higher rates, we are able to tell them we don't expect to build at those rates so we don't get stuck with a capital investment.

### B-2 COSTS

Mr. MURTHA. Can you talk about what it would cost us if we stopped the B-2 program now? Do you have figures that could indicate to us what the cost would be to the government at this point? How much money have we spent on research in the B-2 program?

General FERGUSON. Total sunk cost is $26.7 billion, and we are collecting the information you asked for at the last hearing. We would obviously expect that if, in fact, you were to attempt to terminate, that sunk cost would have to go off as well.

Mr. MURTHA. You don't have that information together yet?

Mr. WELCH. No, sir.

Mr. MURTHA. I think it will be July at the earliest before we go to the Floor. That is going to be obviously a very important figure.

[The information follows:]

Assuming that no additional aircraft are authorized after fiscal year 1990 and FSD is completed, the estimated program cost will be $35.4 billion for 15 operational aircraft ($26.7 billion sunk cost through fiscal year 1990). The cost to go includes the cost of completing the test program ($5.1 billion), and all costs associated with curtailment of production activity. This includes the cost of closing facilities, disposition of tools and fixtures, severance of the workforce, compensation to contractors for unfulfilled amortization of capital investments in plant and equipment, and disposition of specialized parts and materials in inventory or on noncancellable orders. Overhead burden charges on the existing contracts would increase due to allocation of fixed expenses over a smaller business base. The additional cost of all of these effects is $3.6 billion ($26.7+$5.1+$3.6=$35.4 billion). The unit cost of 15 operational aircraft turns out to be $2.36 billion each.

Mr. MURTHA. A recent General Accounting Office report alleges that the limited development funds with the availability of production funds have prompted the contractors, with Air Force approval, to manufacture production radar and navigation units before delivery and testing of development units.

Is this accurate?

Mr. WELCH. Yes, sir.

Mr. MURTHA. What is the risk and the potential impact of that?

Mr. **Welch**. I think we need to go back.

That is accurate in terms of what GAO presumed as they looked at that. It is not accurate in the sense that they are trying to manage the work force and in managing the work force they did not want to keep more people on the full-scale development contract longer than was necessary and as a management decision, the prime contractor decided to move those people into production programs, particularly with application to some of the software development areas.

So he is doing this at his own risk.

### C-17 PROGRAM

Mr. **Murtha**. When you mention software, it immediately takes me to the C-17. Have we got that problem behind us now? Does General Electric have the flight control software problem under control?

Mr. **Welch**. As far as their milestones, they have met all the milestones to date that we showed to you last time. Both GE and the software work going on with the central computer and meeting the milestones to date. You can never tell with software until we get it all together a year from now in terms of all the integration.

Mr. **Murtha**. What is the IOC for the C-17 now?

Mr. **Welch**. I have got to go back and get that number.

General **Ferguson**. November of 1995 is what we are targetting now, sir.

### B-2 DESIGN CHANGES

Mr. **Murtha**. Are you holding down the design changes? Are you still making the design changes—I am not talking about the C-17, but the B-2 program now—are you making design changes which are increasing the costs?

Mr. **Welch**. We have been asked questions on the design changes, particularly by the GAO. I think it is a very difficult time—let me comment on that GAO report in particular—for them to understand, I think, what is happening. The B-2 program started off having to be built even in the full-scale development on production-type tooling and we have used production-type practices to do that.

Mr. **Murtha**. Was this a mistake?

Mr. **Welch**. No, sir. It not only wasn't a mistake, there was no other way to do it. We just don't know how. I think you will find that in the programs that use low observable technology, that they are all going the same way. In the process of doing this, we are comparing our R&D program against what would be rate-manufacturing processes.

I don't believe that we have been able to adequately communicate that to the GAO, so the amount of design change we are seeing is not out of line with what you would see in any kind of a development program, low-rate production and they are coming down; it is obviously the single biggest management indicator of design stability.

So we watch it very closely.

Mr. **Murtha**. Mr. Dicks?

## B-2 BOMBERS

Mr. DICKS. Thank you, Mr. Chairman.

The Secretary of Defense announced as part of the Major Aircraft Review reductions in the number of B-2 bombers to be acquired in stretching the production program.

We have received a notional chart showing a changed schedule that would provide no more than ten B-2s would be produced in any given year, but I have not seen any associated budget figures with this acquisition plan and understand that you are now determining what is the best way to lay out the program consistent with the Secretary's decision.

What is the current status of annual budget figures for the B-2?

Mr. WELCH. I believe that we showed B-2 would go up to 12 per year. That is what the discussion point has been. In the near years, it gets up to ten.

In addition, we have taken——

Mr. DICKS. Our chart that we got is not very clear. It looks like it is a little bit over ten, but there are no specific numbers associated with the chart that the Secretary gave us a week ago Thursday.

Mr. WELCH. Present planning that supports that chart would go up to 12 per year, one per month.

We are in the process of going back to the SPOs and contractors to give us a proposal so we understand what is the best way to manage that and we also have got to look in 1990——

Mr. DICKS. You mean that wasn't done before coming out with this review? We spent months going through a review of this, didn't you go back to the contractors and ask them for options at lesser rates? I find that hard to believe.

Mr. WELCH. If we ask them for budget-type data——

Mr. DICKS. We don't have that ourselves?

Mr. WELCH. We have them on the profiles which we recently worked.

It takes approximately one year to get a proposal from a contractor to a new profile.

We changed the profile at least once and sometimes twice in each of the last fiscal years.

So we have a model——

Mr. DICKS. I understood that you had a computer model at Wright Patterson and you could run the numbers and make some decisions based on that model.

Mr. WELCH. What we have in support of the MAR, we ran many different profiles. Unfortunately, we did not run the exact profile that the Secretary of Defense chose.

Mr. DICKS. How did he make the decision then without the profile? Should he have had the profile to make the decision?

Mr. WELCH. The profile was changed in terms of making his decision. he then made the best estimate he could at that time from the available figures in terms of what the yearly expenditures would be and the savings would be, and that we are in the process of going back now and trying to go against that model and also against new contractor proposals.

It will be several months before we can give it to you at the contractor proposal level, and it will likely be into the month of June before we are able to break it down.

Mr. DICKS. So you have no numbers, zero numbers on what the annual figures for the B-2 will be?

Mr. WELCH. The numbers that the Secretary of Defense gave you are good planning numbers, the best that are available today that you should use.

Mr. DICKS. For 1991 only, though. We don't have any other numbers, do we?

Mr. WELCH. No, sir, you have numbers for each year out through I believe 1994 or 1995. I didn't bring that package with me.

Mr. DICKS. What was the basis for these numbers?

Mr. WELCH. Those numbers are based on deltas from the model. I think the Secretary was also very sensitive to the fact that the size of these numbers and the impact on the contractors as well as on the public markets were such that they were very closely held until they were briefed the same day that the Secretary of Defense came over here.

Mr. DICKS. You know, when you start looking at these numbers, look at 1994; have you got that in front of you?

Mr. WELCH. We can follow along.

Mr. DICKS. In 1994 under the new plan, we spend $6.2 billion and get 12 aircraft. Under the old plan we could have spent $7.8 billion and got 24 aircraft.

The question that comes to mind is that if we are going to do 75, maybe we ought to do it at a more rapid rate and bite the bullet here and get this thing done more quickly and get these unit costs down. This is what is going to blow this program away, when you start talking about $830 million per airplane versus $530 million, which was a sticker shock that this place is probably still reeling from.

It just seems to me that by slowing this down, if you are only going to save $14 billion, that is what we are talking about. We still have to spend $34 billion to complete this program. People are going to start asking questions. I have a question in my own mind whether we wouldn't be better off to buy this at a more rapid rate to get that per unit cost down somewhat?

Mr. WELCH. I think probably the single highest criticism——

Mr. DICKS. Do you have models for that?

Mr. WELCH. Yes, sir. The single biggest criticism was buying the B-2 too fast.

Mr. DICKS. Maybe at the initial point in the program. Say you had your strategy for two at the first point to get some of the concurrency out of the program, to get some of the testing done, to see whether it is going to meet its stealthiness requirements and other tests, but then once you do it, once you are sure you have a program, then it seems to me this notion of stretching it out just because you want to keep the annual figure down is really very questionable.

Mr. WELCH. I don't believe that that was the basis at all. I think by the time you get the test program complete, remove as much concurrency as people have asked us to take out, and when you get to a rate of one per month, you will buy out the airplanes at a fairly quick rate.

Mr. DICKS. It goes from $530 million per airplane?

Mr. WELCH. I think you are looking at different numbers.

Mr. DICKS. Total program costs. That is how the public looks at this.

General FERGUSON. Maybe this perspective. Once the Secretary made the decision to reduce the buy to the 75 total aircraft, then the next thing he wanted to do was to be able to provide stability to the program.

Two ways to get stability from the front end was reduce the degree of concurrency, to get more test data available before he bagan to ramp up, and since the total quantity will be reduced to 75, provide stability in the year-by-year buys by getting it to a 12 per year rate.

There are several ways to look at what is happening to the costs. Obviously he took out more than 30 percent of the funds in the to-complete dollars. If you look at procurement unit costs to complete, and I understand that you have to accept the fact that there is a sunk cost and we want to look forward rather than back, you have a procurement unit cost to complete that is under $500 million.

Mr. DICKS. Compared to $280 million under the old plan.

General FERGUSON. The procurement unit costs under the old plan for the full buy of the 132 airplanes was $425 million.

Mr. DICKS. Per aircraft?

General FERGUSON. Average procurement unit cost. I am giving you obviously an apples-to-oranges comparison, so your figures on $815 million for a total procurement acquisition cost, which is averaging the sunk cost plus the to-go cost, is a correct number.

Mr. WELCH. I think the important thing to try to recognize here is the RDT&E program, which will run on the order of $30 billion, is going to be the same whether you stop the program next year or whether you go on. So as you go down in quantity, you have that $30 billion to spread over a significantly smaller base.

But the marginal cost on the to-go—we are as anxious as you are to be able to get the level of detail at any year that this Committee has certainly shown is required in order to support each one of those requests.

But I will tell you, this is a massive, massive job to get that kind of activity. It generally takes a one-year turnaround from the contractors to get the level of detail that is required.

Mr. DICKS. Do we still have contract problems between Northrup and Boeing?

Mr. WELCH. I would say that they are not negotiated, that is right. They have schedule problems, yes, sir.

Mr. DICKS. Are all the planes that we have appropriated funds for under contract?

Mr. WELCH. No, sir.

Mr. DICKS. How many are not?

Mr. WELCH. Basically the low rate initial production from 1988 on are on long-lead-time contracts.

Mr. DICKS. So we appropriated for what, 16 aircraft?

Mr. WELCH. Sixteen airplanes, minus eight, about eight.

Mr. DICKS. Eight are not under contract?

Mr. WELCH. That is correct.

Mr. DICKS. Why is that?

Mr. WELCH. We have never been able to settle the profile down long enough to negotiate because the numbers change every year. The cycle time of how many to be built in a given year is faster than the cycle time to negotiate.

Mr. DICKS. What basis are we building the airplanes?

Mr. WELCH. On the basis of that model that we talked about. We believe the model has good accuracy. We have had good feedback and I believe we have no problem with respect to the accuracy including the contractor proposals that we have received during that time period.

Mr. MURTHA. The time of the gentleman has expired.

Mr. McDade.

### F-16 AIRCRAFT

Mr. McDADE. Thank you.

Mr. Secretary, let me direct your attention to the F-16 and go over a few questions there. As you will recall, funds were provided in 1989 and 1990 to support the third consecutive four-year multiyear procurement buy for the F-16 aircraft.

What is the status of that contract?

General FERGUSON. We have extended the long lead now through 31 October, and that is $1.44 billion that have actually been put on contract for fiscal year 1989 and 1990. We will probably have to extend the long lead one more time before we are able to definitize it. We expect to have that completed by May next year.

Mr. McDADE. What are the estimated savings compared with the annual buys?

General FERGUSON. Understanding that we are talking for a four-year multiyear and 600 airplanes, it is about 9.6 percent, something over $400 million, $416 million.

Mr. McDADE. How much of the 1990 funding is actually on contract?

General FERGUSON. For the multiyear it is $1.12 billion. Total F-16 funds that are on contract are $1.865 billion.

Mr. McDADE. How much of the 1990 funding has been withheld by the OSD?

General FERGUSON. Ten million dollars of RDT&E and that is associated with the appropriated but not authorized. There is $32.9 million 3010 monies associated with ASPJ.

Mr. McDADE. There have been press reports recently indicating that the Air Force may break the multiyear contract, possibly as soon as in 1990.

How seriously is the Air Force pursuing this option?

Mr. WELCH. We are not specifically pursuing breaking the multiyear right now, but I think realistically the idea that we are going to be able to buy 600 airplanes over the next four years I think the realism is small.

So as soon as we can in fact get a profile, we will in fact have to revisit that multiyear and revisit it like many other programs in a rollback all the way to the fiscal year 1990. As soon as we can get numbers as far as the budget outline, we will propose to do that.

Mr. **McDade**. What are the estimated termination costs, assuming that you have to roll back the multiyear, what kind of termination costs are out there?

Mr. **Welch**. That would depend upon the profile, the numbers in total and the numbers in individual years.

Mr. **McDade**. Any ball parks at all? Suppose you bought 100 less or 200 less, any ball-park estimates yet?

Mr. **Welch**. I think the ball park would have to be significant.

Mr. **McDade**. That is what I am trying to get to. We would like to as we work through the problem with you, get some handle on what those figures are going to be, those termination costs.

Do you have a figure assuming a profile of, say, 200 airplanes not bought, what the termination costs would be?

Mr. **Welch**. We have looked at some numbers ourselves, but as far as a proposal from the contractor in terms of where his termination costs are, we don't have one that is supportable.

We agree we will have to work almost on a week-by-week basis with the Committee here as we get data on this.

Mr. **McDade**. Keep us informed. This has been a good multiyear and it has saved money, worked well, you have a great airplane. It is under estimate I think all the way through.

Mr. **Welch**. It has been an excellent one and it has maintained its base year dollar costs while we have been improving it.

Mr. **McDade**. Make sure you stay in touch with the Committee about where this decision process is until we see the extent of the termination costs and what we are going to get for terminating or whatever.

Mr. **Welch**. Sometimes when we put airplanes in, they go in at one cost but when the contractor takes them out, they come out at another cost and it takes us a while to separate those out.

Mr. **McDade**. We have information that the 1992 POM takes the F-16 program down the 96 aircraft in 1992 and 48 aircraft for 1994 through 1997. If that were to be the President's request, by how much would the unit cost increase?

Mr. **Welch**. That to the best of my knowledge is not what we have in our POM, but probably, as I said before, on any given day that may have been a profile. I would say that we would see in excess of 30 percent.

Mr. **McDade**. You are saying it is still a floating number, no decision reached?

Mr. **Welch**. No.

## F-15E AIRCRAFT

Mr. **McDade**. The F-15E, the President's budget submitted in January included $1.7 billion to purchase 36 F-15Es in 1991. However, that total included $499 million which was to be derived by transfer from deferrals in other accounts. On March 28, 1990, OMB Director Darman notified the Congress that the administration would no longer withhold the deferred funds. What is the current administration position? Is it to buy fewer aircraft with the remaining $1.2 billion or will additional funds for the F-15E be requested?

General **FERGUSON**. Well, this is a very important point for us, sir, because obviously you know the F-15E is a critical airplane to our tactical air forces and we hope that we don't have a misunderstanding here.

Our request is for $1.7 billion and that is to buy 36 F-15Es, and if because of the——

Mr. **MCDADE**. Let me stop you because the request is before this Committee. The formal request for appropriated dollars is $1.2 billion, not $1.7 billion.

General **FERGUSON**. We understand the peculiar way that that appropriation request was delivered to you.

Mr. **MCDADE**. Peculiar—what is peculiar about it?

General **FERGUSON**. In that it had carry-over monies from the fiscal year 1990 source to bring it up to the full $1.7 billion.

Mr. **MCDADE**. The deferral package?

General **FERGUSON**. Yes, sir.

Mr. **MCDADE**. What is today the official administration request for the F-15E? How much money have you requested to be appropriated in fiscal year 1991?

General **FERGUSON**. We believe $1.7 billion, and if that is not acceptable, if we have a misunderstanding here——

Mr. **MCDADE**. You fellows work it out and give us an answer.

General **FERGUSON**. We would like to work with you.

[The information follows:]

The Air Force structured and justified the fiscal year 1991 F-15E budget request based on a 36 aircraft buy and a cost of $1.7 billion. The President's Budget, however, proposed financing of this line through a combination of $1.2 billion budget authority and $498 million derived from proposed fiscal year 1990 deferrals. The withdrawal of the deferrals leaves a portion of the request unfinanced but does not alter the requirement for the aircraft. The Department asks authorization of the quantities and dollars justified, recognizing that we have not yet determined the means for alternative financing of the request.

Mr. **MCDADE**. You are talking about maybe a half a billion dollar shortfall here.

Mr. **WELCH**. It is a broad budgeting issue that is beyond the Air Force. The Air Force request is for $1.7 billion; the Air Force request to OSD in the budgeting process is $1.7 billion. How the budget is financed in what years is a question more appropriately directed to OSD, not to the Air Force.

Mr. **MCDADE**. What you have in front of us is not $1.7 billion, it is $1.2 billion, and that is really—although you may believe it to be $1.7 billion, what you officially have here is $1.2 billion, and you know, that means that that is not going to buy the same number of airplanes and support equipment so you are going to have to get in conversation with us immediately.

When you go back over today, you ought to talk to somebody to work this problem to see if you are going to get an upward adjustment. We are not doing that much adding to the official requests. We are going to have to do a lot of working around these numbers.

Mr. **WELCH**. We have been told that conversations are going on with your folks with respect to the deferral package.

Mr. **MCDADE**. That was March. We are getting close to markup. We invite your attention to the discrepancy, something like 13 fewer aircraft, isn't that the difference between $1.7 and $1.2 billion?

General **Ferguson**. Approximately.

Mr. **Welch**. We will take that request over.

### ADVANCED TACTICAL FIGHTER

Mr. **McDade**. The Chief of Staff has been quoted in the trade press before the results of the Major Aircraft Review as saying the Air Force may want to review the decision to terminate the F-15 if the ATF schedule slips further.

Especially in light of the two-year extension of full-scale development for the ATF, is the Air Force seriously reviewing the decision to terminate the F-15 after 1991?

General **Ferguson**. As we worked our way through particularly the MAR decision, sir, as we have looked to the future at a smaller Air Force, we did reconsider that decision and we intend to close down the F-15 line.

Mr. **McDade**. So you haven't changed that decision? 1991?

General **Ferguson**. No, sir.

Mr. **McDade**. Your testimony on the ATF the other day indicated there are five bench marks against which you are looking at to deal with the threat to come over the horizon? Restate those five points for the record, will you?

Mr. **Welch**. Yes.

[The information follows:]

The ATF is using a balanced design approach based on five capabilities or benchmarks that will enable the ATF to gain and maintain air superiority well into the next century. The first benchmark is First Look-First Kill. This capability leverages our technological leadership in advanced weapons, stealth technology, and our ability to integrate avionics. These factors combine to produce a weapon system that can detect, engage, and destroy the enemy. The second point or benchmark is Survivability. The ATF is exceptionally survivable because of its stealth, maneuverability, supersonic cruise capability, and integrated avionics. These characteristics provide superior agility at high and low airspeed, make the ATF difficult to detect, lessen the pilot's workload, and provide for increased situational awareness to avoid airborne and surface-to-air threats. The third ATF benchmark is Lethality. Because of stealth, maneuverability, advanced weapons, and integrated avionics, the ATF will be the world's most lethal fighter. Reduced radar, infrared, and electronic signatures combine to make the ATF difficult to detect. This gives the ATF a marked advantage over threat aircraft, permitting the aircraft to find and destroy the enemy, beyond visual range and beyond the range of enemy airborne detection systems. The ATF's fourth benchmark is a Large Radius of Action. The ATF's advanced propulsion system, supersonic cruise (known as supercruise), and capability for aerial refueling permit engagement of the enemy at a comfortable distance from friendly air bases, and eliminate or reduce threat aircraft sanctuaries. This is particularly important in today's climate of uncertain international relations, our continued worldwide interests, and reduced number of accessible friendly air bases. The final ATF benchmark is Sustainability. The ATF is being designed to capitalize on common avionics (with the Navy's A-12, the Air Force ATA, and the Army's Light Helicopter), high reliability, self-sufficiency, and reduced support. These factors together make the ATF the simplest modern fighter to maintain and the easiest to deploy overseas, requiring half the support personnel of today's air-to-air fighters. The ATF's benchmarks have guided its balanced design and development from conception. The ATF has the right design to ensure air superiority into the twenty-first century.

Mr. **Murtha**. The time of the gentleman has expired.

Mr. Miller.

## CRUISE MISSILE CAPABILITIES

Mr. **Miller**. Thank you, Mr. Chairman.

Gentlemen, it is often suggested that the cruise missile can substitute for the B–2. As I understand, the guidance system on the Tomahawk cruise missile is dependent on accurate terrain maps which would be affected by changes due to weather or damage from explosions.

The cruise missile is a valuable strategic weapon, but can you expand upon its limitations and the necessity of retaining a manned bomber?

Mr. **Welch**. Well, no, I think the better way to look at that question is it is not an either-or case. We have a triad and that is the basic strategy that talks about the individual, the robustness of the individual legs. So I don't believe that you substitute one for the other and still gain the military capabilities for deterrence.

Now, with respect to your question about the limitations of the terrain following, there have been a large number of tests that have been done in all-weather, snow-covered ground, the various changes that come, and we believe we have that problem sufficiently in hand so that the cruise missile accuracy that we are predicting will be achieved.

In fact, we have flown many captive flights in that environment. So we at the moment are not concerned about accuracy or the ability to deliver any of the cruise missiles per se. But again, it is quite a separate question with respect to a triad which has really done good for us for some large number of years now.

## AIRLIFT OBJECTIVE

Mr. **Miller**. The Department of Defense has previously identified as an objective the capability to airlift 66 million tons per day, and Secretary Cheney in the major aircraft review states that circumstances have changed and reduced the planned procurement of C–17s from 210 to 120.

Has a new airlift objective been established, and if so, could you furnish that material, that information to the Committee?

Mr. **Welch**. Yes, sir.

[Clerk's note.—The answer was provided for the committee's files.]

Mr. **Miller**. You probably have that at the present time?

Mr. **Welch**. Mr. Cheney said that when reviewing the airlift profile, the 48 million tons miles that was available today, he had decided that he would maintain that and not increase it at this particular time while he continued looking at airlift requirements.

So the C–17 buy, as it replaces the C–141, will effectively keep the airlift capability that exists today. The objective of 66 million ton miles per day was a result of several different analysis models. I believe that in the major aircraft review, what they addressed themselves to were specific scenarios that one could expect to fly, Southwest Asia, et cetera, recognizing the changing environment.

I think Secretary Cheney also said that over the time period of production of the C–17, they maintained the production rate such that that decision could be revisited at some time in the future if it was found that more was required.

Mr. **Miller**. In addition to the Soviet concern, there are new formidable threats on the horizon and the U.S. is facing a world in which high technology has come into the hands of a widening circle of nations. We understand that, but you are talking about regional conflicts, and in progress all over the world, the Pacific rim, Southwest Asia, the Middle East, Africa, Latin America and the Caribbean. It is all over the world, but it has been all over the world all along with the Soviets and in Eastern Europe. Can you put a priority on this, from what you know, if you are buying aircraft, as to where we have these immediate dangers and why we could not use what we have without purchasing 600 aircraft in the next four years? I heard you mention that figure.

Mr. **Welch**. That was on the F-16 that we talked about over the next four years, or did you want to speak to the C-17 over that time period?

Mr. **Miller**. Well, whatever is necessary. What is the high priority needed in order to protect those particular areas and regions of the world that you mention in your statement, and also the priority as to where we may have conflict as far as your crystal ball is concerned.

Mr. **Welch**. I think that the thing that has changed is the probability of needing to move ten divisions in ten days to Europe has certainly changed since all these scenarios were sized. I don't know that I could even venture a personal opinion because it is not in my field.

They are looking at—and I think what was reported to the Committee is different scenarios recognizing the different threats. The more important point I think is not so much the quantities of aircraft as the quality that has to be kept up so that you do see in the budget modernization of airlift, modernization of the fighter force.

General **Ferguson**. I think at our last hearing, sir, we also were asked by the Chairman to illustrate the importance of the C-17 to an airlift operation that would stretch from the United States into the Middle East, and we are bringing that information together for the Committee. That would be I think another good illustration of the advantage of the C-17.

Another reminder, of course, is the fact that the C-141 is a very tired airplane from the point of view of airframe usage, and it is just going to be impossible to extend the C-141 life much beyond 45,000 hours, 30,000 hours being its present design for service life.

So I think those two elements, perhaps the third being that where we send our Military Airlift Command worldwide is oftentimes used for national purposes beyond defense. It is for emergency relief, humanitarian reasons, so the ability to get an airplane like the C-17 in and out of many more countries and airfields than we can our present C-141s will enable us to provide that kind of aid worldwide as well.

### BUDGET PRIORITIES

Mr. **Miller**. You mention, Mr. Secretary, in your testimony, that the Air Force budget was painstakingly crafted to keep our aerospace forces on a stable, prudent course, and that our budget also reflects termination of low-priority efforts that are no longer needed or affordable.

Can you elaborate on that statement a little as to how you decided what would not be needed or what would be the low priority?

Mr. **Welch**. The first thing that sets that is the amount of force that you are going to have. If you recall, it was just a few years ago that we were talking about a tactical fighter force objective of 44 TAC fighter wings. Today we are looking at a fighter force that is probably headed for the low 30s as far as TAC fighter wings and perhaps below. So those various things that support a growing force are obviously the first to go.

We have to make certain that we have full support for the reamining force so we have in fact moved some money from the investment accounts to the readiness and in some cases, the sustainability accounts, and I think you will see in these budgets that we have tried to feature that.

Specifically, weapons that we are going to buy out, Maverick, for example; we have enough in our force.

The combined effects bomblets, we have enough for the smaller force. I could supply for the record the specific programs that in this budget we have canceled.

Mr. **Miller**. Thank you.

[The information follows:]

Two programs have their last funding in the fiscal year 1991 budget—the F-15E and the Maverick missile. Two others have funds terminated after the fiscal year 1990 budget: (1) Air Force participation in the Airborne Self-Protection Jammer (ASPJ), and (2) the Combined Effects Munition (CEM). Finally, two programs, the Modular Stand-Off Weapon (MSOW) and the Advanced Short Range Air-to-Air Missile (ASRAAM), had their last funding in fiscal year 1989.

Mr. **Murtha**. The time of the gentleman has expired.

Mr. Dicks.

### B-2 PROGRAM

Mr. **Dicks**. Let's go back on the B-2. There was a GAO report that maintains that quality in the manufacturing process has not improved. The rate of defects per thousand hours of work is about the same for the third aircraft to the sixth development aircraft, but is greater than the rate for the first and second. Why can't the contractors do better? What is the problem here?

Mr. **Welch**. We need to return—this is all out of the same GAO report, and what I have got to make clear is that I believe we are comparing unlike things and that has not been appreciated here.

We have one aircraft flying. We have an airplane to come on line in August for number two and number three airplane is coming on to fly in February of 1991. Those are airplanes that are complete. They are the full-scale development that are complete. They are the full-scale development without ever getting into low-rate initial production.

I believe the GAO is applying a set of rules which don't exist. There is not by the standards that they have shown, a comparison to what you would see in any normal R&D program. In fact, these statistics won't even be kept or reviewed on any other program at this time. So we would say that the hours are coming down, the changes are coming down and in fact whether they be the contractor's estimates or whether they be the Air Force's estimates they are coming down a reasonable learning curve and we can certainly supply some for the record.

Mr. DICKS. Give me something for the record showing how the Air Force views on hours per aircraft and on defects per aircraft.

[The information follows:]

There are many ways to review or analyze quality assurance data. One method used to normalize data is by dividing defects by 1000 hours worked. This method was used by GAO. However, this approach can be misleading. When programs are in the early start-up phases, and relatively few hours have been accomplished, and when significant reductions in manufacturing hours are occurring due to learning, this method does not provide a meaningful representation of performance. This is the case with the B-2 data. Also, a basic ground rule for using this type of normalized data is that the basic statement of work for each air vehicle must be similar. AV-3 and subsequent aircraft are more complicated than AV-1 and AV-2 because they carry additional systems and equipment not installed in AV-1 or AV-2. One would logically expect to see more defects in a more complex product. A simple example will show why, in the early phase, this normalized data would be questionable.

If 10,000 defects occurred in 50,000 manufacturing hours, this would equate to 200 defects per 100 hours (10,000/50,000=.2 x 1000 = 200). If we reduce defects in half and also reduce manufacturing hours in half the defect rate will remain the same. This certainly does not mean we are not improving even though the rate per hour is the same (5,000/25,000 = .2 x 1,000 = 200); rather, defects have been reduced by half. Such data really becomes confusing when manufacturing hours are declining faster than defects. For example, 5000 defects in 20,000 hours (5,000/20,000 = .25 x 1000 = 250 defects per 1000 hours) is still a 50 percent reduction in defects, but the defect rate is now 250 per 1000 hours.

In the case of the B-2, looking at total actual hours shows we expect significant reductions in actual hours to complete AV-3 compared with AV-3 compared with AV-1, even though there are approximately 6,000 more standard hours of work in AV-3. This increase reflects the installation and check-out of full-up avionics systems. Because the data would be misleading, the B-2 program chose not to use this type of measurement for quality in major and final assembly.

For a data base with more manufacturing hours, normalizing the data to defects per 1000 hours becomes more appropriate. In fact, the B-2 program has been using this data for months in the fabrication shops. When we look at the data today, approximately one year after the GAO's report, positive trends are appearing.

Mr. DICKS. Is the Air Force trying to do something to manage the situation?

Mr. WELCH. First I would tell you that I think what you are seeing here is already the effect of a change in management and a change in approach with respect to Northrup and the subcontractors. The amount of travel work, how much work is actually completed in station, which is where you get the most productivity for the dollar, by the tenth aircraft there will be no more traveled work which is a good measure of that.

Mr. DICKS. Let me ask you a question since there was a little confusion about what is under contract. How many of these planes are under actual construction right now, today? We are doing the long lead on the last eight, but are any of those eight actually under construction since we don't have a contract with the contractors?

Mr. WELCH. If we go back—let me try to run these down. If you recall in the full-scale development program, we have a total of eight aircraft, six of which are flyable and one for static and one for durability. Air vehicle 1 is obviously flying. Air vehicle 2 is essentially ready to enter flight test.

The development, durability test is actually complete and in the jig starting the durability testing. The static is complete and is in the jig doing the static test program.

Air vehicle number 3 is in what we would call final assembly. Air vehicle number 4, 5 and 6 are working their way into final assembly. Those are the full-scale development articles.

Now, starting with the LRIP contract, the low-rate production, there were five aircraft in 1987 and 1988 and basically the air vehicle number 7 is just beginning to approach the final assembly area.

Air vehicle number 8 is in subassembly as is 9, 10 and 11. The low-rate production contract for three aircraft in 1989 are in detailed fabrication, as are the two aircraft that are in fiscal year 1990.

General FERGUSON. Mr. Dicks, I would like to give you some data on the number of hours that is the Air Force estimate and that are contained in air vehicle number 1, 1,500,000 hours. It is our estimate that by the time we have completed the third airplane, it will be 800,000 hours so we are clearly bringing down the hours to build.

The defect rate question is something that deserves a revisit for just a moment. Clearly the defects are coming down as we build each airplane and the total number of hours as I have just illustrated, are coming down as we build following airplanes.

A defect rate, of course, is a calculated number and so if I start off just, for example, if I have ten defects and it takes me 100 hours to build the product and by the time I build the second or third product, I have only one defect but it has taken me 10 hours, I have the same defect rate.

We get into a statistical argument here. For instance, if I got it down to two defects in ten hours, I would have a significant increase in the defect rate when in fact, I am really working the problem correctly, bringing down the absolute number of defects and hours.

I think we are into that kind of statistical discussion.

Mr. DICKS. Describe this in some detail in the record so we can understand it better.

[The information follows:]

It is difficult to compare defect rates for each B-2 at this stage of the program because only one aircraft (AV-1) has been completed and one aircraft (AV-2) is nearing completion. Additionally, AV-3 and subsequent aircraft are more complicated than AV-1 and AV-2 because they carry additional systems and equipment not installed in AV-1 or AV-2. Because of this, is it not appropriate to try and compare AV-1 defects to the rates on follow-on aircraft. The following chart shows the total actual hours per aircraft in production and the total defects for that stage of production. At this time in the program this reflects a better measure of quality.

| | Percent of completion | Total actual hours | Total defects |
|---|---|---|---|
| AV-1 | 100 | 2,250 | 140 |
| AV-2 | 90 | 1,945 | 94 |
| AV-3 | 79 | 1,313 | 99 |
| AV-4 | 66 | 1,077 | 82 |
| AV-5 | 62 | 884 | 63 |
| AV-6 | 60 | 795 | 52 |

Note.—Figures are approximate with totals in thousands.

Mr. DICKS. A comparison of planned and actual labor hours indicates that although hours are coming down, they are not coming down very quickly. For aircraft 3, planned hours were 406,998 and actual are 789,713, a 94 percent difference. How do you explain that?

General FERGUSON. The contractor had given estimates for how many hours it would take and the Air Force has made an estimate. We have over the years had a difference of opinion. The numbers that you used, the 406,000 hours is actually the contractor's estimate and the 789,000 is the Air Force estimate. And the statistic that I would like to leave you with is that what we have done by the Air Force estimate is to bring down the hours from the 1,500,000 on airplane 1 to 800,000 hours on airplane number 3.

Mr. DICKS. What was your projection going to be?

General FERGUSON. Those are our estimates and the airplanes have been coming in pretty closely to the Air Force estimate and that is the reason I have elected not to give you the contractor estimate.

Mr. WELCH. The confusion is if you ask the contractor what his estimate of hours is, he will give you honestly the way he quotes that. If you run it through a model that understands what his prior actual experience was, the Air Force estimates those numbers and that is what we try to budget to.

We are much, much closer to budget than the contractor at this particular time. I think the headings of the columns are simply mixed up in the GAO report in that there is a contractor estimate, an Air Force estimate——

Mr. DICKS. Have you done anything to try and correct this with GAO?

Mr. WELCH. Yes, sir. They simply do not accept our comments. They acknowledge them but in the last series we have gone around with them on this report, we have not been able to communicate sufficiently apparently to get them accepted in the report.

As you know, we have three full-time resident GAO people in the B-2 program office and have had for several years. So it is a day-to-day working operation with them, but for some reason we don't make the cut when it comes to the final report to get our comments in.

Mr. DICKS. Put it in the record.

[The information follows:]

General: The B-2 Program Office has reviewed the draft GAO report and although we believe that the report is factual, we believe that some of these facts are taken out of context and fail to report the entire story.

Acquisition Strategy: The B-2 acquisition approach has been to institute formal risk minimization plans to limit the government's financial liability and to provide a structured way for decision makers to assess system maturity.

The B-2 Advanced Technology Bomber acquisition plan focuses on an intensive formal risk reduction program instituted during the initial full scale development phase. High risk areas were identified and their development accelerated to mature technology early, reducing development and production risk. Maintainability and supportability issues were also addressed during this period. Only upon successful completion of this risk reduction effort was the acquisition program allowed to proceed into full scale development (FSD). After almost a decade in concept definition and full scale development, a small quantity of aircraft were to be procured providing an efficient transition to three aircraft per month. Our acquisition life cycle was planned to be 17 years, much longer than the 12 to 13 years prevalent to acquisition programs in the late 1970s. Stretch out of production aircraft buys has added four years to the originally planned B-2 acquisition time span.

A System Maturity Matrix (SMM) has been developed to give decision makers performance criteria against which to measure five preplanned maturity milestones. This matrix is the primary tool to measure technical risk as the program progresses through production decision milestones.

Concurrency: Concurrency, simultaneous production and full scale development efforts, is less on the B-2 program than on other recent major aircraft acquisition programs. Some degree of concurrency has been part of the B-2 acquisition strategy since its inception. Formal efforts to manage the risks associated with concurrency included a formal risk minimization plan, the Initial FSD plan, and the System Maturity Matrix. Some degree of concurrency is required to reduce the time from concept definition to deployment. Managing concurrency risk requires balancing the maturity of the weapon system and manufacturing process against the governments's liability and operational requirements. The government's financial risk is measured in terms of termination liability plus the number of aircraft delivered, or in various states of production, against the projected cost of any required future changes.

The GAO report comments that, at the time of the fiscal year 1991 production decision, 21 aircraft will have been authorized and $32 billion appropriated while only airworthiness and limited low observable flight testing will be accomplished. While this statement is true, it must be pointed out that $19 billion of the funds appropriated will have been for RDT&E, while of the remaining $13 billion for production, $9 billion will already be on contract only with the remainder ($4 billion) pending the production decision. The government termination liability (financial risk) on the production funds appropriated is limited to $6 billion. At the time of fiscal year 1991 production decision, only three of the 10 LRIP aircraft on contract will have entered final assembly. Six of the 21 aircraft referred to are the FSD test aircraft.

GAO also notes that by the 1993 multiyear decision milestone, 52 aircraft will have been authorized and $48 billion appropriated. Of these 52 aircraft, only six FSD and 25 production aircraft will actually be on contract prior to the multiyear decision. Nearly $21 billion of the appropriated funds will have been for development and test, and of the remaining $27 billion production funds, $20 billion will be on contract for those 25 aircraft, spares, and support. Government termination liability on those funds will be limited to approximately $16 billion. At this point only three aircraft will have been delivered to SAC, with eight aircraft in various states of final assembly.

The following table summarizes the status at the fiscal year 1991, 1992, and 1993 decision points.

[Dollar amounts in billions]

| | Production decision | | |
|---|---|---|---|
| | 1991 | 1992 | 1993 |
| Annual aircraft authorized | 5 | 10 | 21 |
| Production aircraft on contract | 10 | 15 | 25 |
| Cumulative production aircraft | 15 | 25 | 46 |
| Production aircraft delivered | 0 | 0 | 3 |
| Percent test months completed | 11 | 34 | 70 |
| Cumulative dollars appropriated: | | | |
| RDT&E | 19 | 20 | 21 |
| Production | 13 | 20 | 27 |
| Cumulative dollars obligated: | | | |
| RDT&E | 18 | 19 | 21 |
| Production | 9 | 13 | 20 |
| Cumulative termination liability: | | | |
| RDT&E | 18 | 19 | 20 |
| Production | 6 | 10 | 16 |

In an effort to prove the point that the B-2 program is concurrent, the GAO has concentrated on the B-2 flight test schedule. Not enough credit has been given for laboratory avionics flying test bed, and structural testing already completed and currently in work. For example, the radar and navigation subsystems have been extensively tested in the flying test bed, the radar for 750 test hours during 127 flights and the navigation system for almost 400 hours in 66 flights. Extensive testing has also been completed in the ground laboratories. In addition to the extensive ground testing in the avionics lab, over 20,000 hours of testing has been completed in the flight controls and hydraulic lab. Early structural testing is also part of the baseline plan. In 1986, a large composite structural component successfully completed a static test and in 1987 another large piece of structure completed two lifetimes of fatigue testing. The full scale durability and damage tolerance and the static test articles are currently under test. There have been over three quarters of a million hours of reliability testing and we have taken over 100,000 radar cross section images of B-2 scale models and components to measure their signature. This amount of early testing is unprecedented in aircraft acquisition.

Avionics Cost: GAO reports that estimated cost for the avionics subsystem has increased $3.8 billion since 1986. The important point missing from the GAO report is that most of this growth was due to a refinement in estimating methodology between 1986 and 1987 and the costs associated with stretching the aircraft production program. In 1986, and prior years, estimates were based on less exacting parametric estimating methods that rely on weight and projected engineering and manufacturing complexities. In 1987 we felt that enough actual data was available to refine our estimating methodology. The program estimate for the Avionics Subsystem has been stable since 1987, except for increases related to schedule perturbations and increasing inflation rate projections.

Conclusion: The B-2 program has established a management process which provides Air Force, DOD, and Congress a means for risk assessment as the B-2 progresses into full production. The test program is structured to minimize risk consistent with government financial exposure and we will continue to adjust the program as prudent to balance these elements. For example, by initially using air vehicle 7 for Electromagnetic Interface (EMI) testing we were able to increase the availability of aircraft 6 to support FSD flight testing, to complete EMI testing much earlier than originally scheduled, and smooth the flow of aircraft into the operational inventory.

Mr. Dicks. The other day there was an article in the Washington Post by Jeffrey Smith regarding an interview with General Chain. In that interview, it says, "Once the B-2 bomber force is operational," Chain said, "Air Force pilots will be permitted just two flights in the air per month for training, less than half the normal rate for B-1 and B-52 strategic bombers."

Is that accurate? If so, why is this?

General Ferguson. His statement that he planned two training flights per month for the crew on the B-2 was correct. What was not reported was his intention to provide additional training for those air crew members in a T-38.

Mr. Dicks. That is the next paragraph.

General Ferguson. And that he intended to use simulators also as a significant combat training vehicle and the combination of proficiency flying in the T-38, actual B-2 training missions and simulators he thought would keep his crews at least as proficient as present ones.

Mr. Dicks. He suggested that the new plane's production and operating costs were too high to allow more frequent flights and then explained that pilots would gain additional experience on much smaller T-38 training aircraft and ground-base Air Force simulators.

We understood that the operating costs were not as high as the B-52 or the B-1.

General Ferguson. I don't recall that that is the way General Chain actually spoke. I think what he was saying is that what you would like to do is always be able to operate a weapons system such as this as efficiently as you can.

I think his view is that he can keep his crews combat ready for the lowest operational costs by using the T-38, the B-2 and the simulators.

Mr. MURTHA. Mr. McDade?

### C-17 PROGRAM

Mr. McDADE. I want to return to the C-17, if I may, please.

The MAR reduces the 1991 buy from six to two, but it appears that briefing charts that were submitted by Secretary Cheney in connection with this announcement indicate that the production of four aircraft in fiscal year 1990 is very likely to slip. Will you elaborate on the likely acquisition profile for 1990 and 1991?

Mr. WELCH. I don't specifically know what was meant by that chart.

What I believe is that if you take a profile down from four to two and then go up to six, it is not an efficient or effective profile and I can only speculate that what that was meant to convey is that we would have to look at repackaging 1990 and 1991 into a more efficient profile in terms of exactly how we bought the aircraft and we must do that as we get the details of the year-by-year activity.

Mr. McDADE. Could you tell us what your acquisition will be as you repackage it, are you going to try to get four in 1990?

Mr. WELCH. The present contract has four in 1990. We are in the process of finding out what is the best way to do that.

Mr. McDADE. Three and three or another combination?

Mr. WELCH. The first part of the question is probably where we are, that we would look at combining the two-year buy and phasing them as best we can within a single contract.

Mr. McDADE. Cost effectiveness——

Mr. WELCH. Yes, but we would try not to lay off people.

Mr. McDADE. In terms of efficiency and morale of the people in the plants, et cetera.

Mr. WELCH. Yes, sir.

Mr. McDADE. That is a decision that you haven't gotten to yet?

Mr. WELCH. We have made the decision, but we don't have the answers from the contractor and SPO.

Mr. McDADE. When do you plan to be on contract for 1990?

Mr. WELCH. For 1990, our contract office would make the award in December of 1990.

Mr. McDADE. What milestones have to occur prior to that?

Mr. WELCH. We have to have the mating of the first aircraft. That is the significant part of the slip we had last year when we moved the first flight from 1990 to 1991 because we did not have the aircraft mated.

That caused that contract not to be awarded, I believe, in January of 1990 and moved it back to December of 1990.

Mr. McDADE. Any idea on the 1991 contract?

Mr. WELCH. The 1991 contract event is the first flight of the first test aircraft and the first flight of the first production aircraft.

Now, if we package those two contracts together, obviously we are going to have to do something to look at what are the events that caused that to be awarded and that is in the process of being looked at.

Mr. McDADE. The Early Bird has a devastating article today about the work force in this C-17 plant, done by the people who were in the plant indicating there is a quality control problem there.

I don't see how you could not have morale problems all through the system when things are jerking back and forth.

Mr. WELCH. We have talked on a rather constant basis with the people at Douglas over the past two years. I think that what is being reflected by that article is that the changes that are in place are, in fact, happening.

I think the fact that they are being looked at, we have talked about two major reorganizations at Douglas in the past two years.

We believe that we are seeing the beneficial effect of that now and that, as you point out, things that have to be fixed, they don't sound good, but you have to find them before you can fix them.

### C-17 ENGINES

Mr. McDADE. We hope so.

Let me ask you about engine unit costs per aircraft.

The back-up book reveals that engine unit costs per aircraft increase from $11.7 million in 1989 to $18.9 million in 1990 to an estimated $23.7 million in 1991, an increase of 100 percent in two years.

Especially since this is a commercially available engine, why are costs increasing so dramatically?

Answer that for the record.

[The information follows:]

Fiscal year 1989 engine costs contain a Pratt & Whitney (P&W) to Douglas Aircraft Company (DAC) one-time financial participation of $25 million. An agreement between P&W and DAC states that if certain quantities were purchased by the Air Force over the first four lot buys, P&W would credit $25 million towards that buy. Under the buy schedule used in the 1989 C-17 estimate, the Air Force was able to capture the credit in the fiscal year 1989 buy. The fiscal year 1989 cost per shipset without the credit is $18 million, a price which is consistent with the fiscal year 1990 shipset price. The delta between the fiscal year 1990 and fiscal year 1991 buys is caused by a change in P&W's catalog unit price. The cost of commercially priced engines is established by the marketplace and determined on the basis of the price of competing engines and their relative cost of operation. Because the F-117 contains no upfront development costs like military developed engines, P&W has quoted a low first engine price and has increased it as the engine gained value over the years. The P&W price to DAC in fiscal year 1991 was considered an introductory price for its PW2037 engine. Over the development years of the C-17, P&W has modified the PW2037 and now markets the PW2040 engine. The success of the engines in the commercial market has enabled P&W to adjust their pricing upward for follow-on lots beyond fiscal year 1990.

Mr. McDADE. Mr. Chairman, I have no further questions at this time.

Mr. DICKS. Mr. Miller?

Mr. MILLER. I do not have any more questions, Mr. Chairman. Thank you.

### B-1B AIRCRAFT

Mr. DICKS. Not counting the considerable sums from the M account and expired surpluses which the Air Force intends to use for the B-1B aircraft, the 1991 budget includes $155 million for the B-1B depot and for modifications.

What is the relative priority of the following B-1B activities: SRAM II integrations, depot level support, overwing faring fire protection, 1122 antenna improvement, and the Lot I/II engine upgrade?

Mr. WELCH. Let me say that it is difficult to rank those in order. I will tell you why. There are really three different categories of changes there, and they competed for the available money.

Let me try to go over them and tell you where they would fit. Overwing faring fire protection is a safety-of-flight item, so you would have to look at that as a high priority. I think as you go into the depot level support and Lot I and II engine upgrades, those are cost-avoidance items because without depot level support, we have interim contractor support which is costing us a significant amount each year. The Lot I and II engine upgrades get us to a common configuration. The SRAM II and 1122 antennas are improved capabilities for the airplane.

The SRAM II is an new vehicle to replace SRAM I, which has given safety problems and we need the added capability. The 1122 antenna is an improved antenna to an installed system that gives us better ECM. They are all first priority anu completed for the available money.

Mr. DICKS. Is the cost $155 million for all of those?

Mr. WELCH. Yes.

Mr. DICKS. That is new money.

What are you doing with the money that is in the M account in expired surpluses? How much of that money are we talking about spending on the B-1B?

Mr. WELCH. On the B-1, we have come back with the respect to the core program and asked for both the RDT&E and the production money necessary or procurement money necessary to fix the core program and that activity——

Mr. DICKS. That is being funded out of the M account and expired surpluses?

Mr. WELCH. That is correct.

Mr. DICKS. Give me how much that is for the record. It is a couple hundred million dollars or $500 million.

Mr. WELCH. $500 million; $589 million or something.

[The information follows:]

The total amount of expired/lapsed funding required for the ALO-161A "Core" program is $526 million. These funds include $110 million for spares. To date, $387 million of the $526 million total is still required from the expired/lapsed accounts to complete the production contract and the retrofit the entire B-1B fleet of the "Core" configuration. Since the contract is currently only funded through May 31, 1990, $89 million is required to fund the program through testing of the "Core" system scheduled later this year and the Functional Configuration Audit (FCA) scheduled for February 1991. Following a successful testing/program and FCA, the remaining $298 million of expired/lapsed production funds will be utilized to retrofit the B-1B fleet.

Mr. DICKS. Anything else we are doing out of the M account or expired supluses?

Mr. WELCH. No, sir; not right now.

Mr. DICKS. There was some reprogramming requested. What is the status of that? That was out of the M account. Has that been approved?

Mr. WELCH. The first increment of that has been approved. We will run out of funds again on the 30th or 31st of May and we will be back——

Mr. DICKS. Is your problem over in the other body, the Senate Appropriations Committee?

Mr. WELCH. No, sir.

I don't think that we could identify per se—I think that if I go back to last year, the specific way that came over—I think it was requested in the House Armed Services Committee or the House Appropriations—you all would have to answer that question.

Let me assure you there is a difference. I am sorry I can't tell you exactly where it is.

Mr. DICKS. SRAM II integration development will only be half completed at the end of 1990. In light of this level of concurrency and problems with the SRAM II motor development, why does the Air Force believe $58 million in procurement funding is needed in 1991?

General FERGUSON. Well, sir, the—this is money to put the SRAM II on to the B-1, SRAM II being a very important program for the strategic forces.

We are doing pretty well today with our integration efforts as opposed to last year where it seemed appropriate probably to delay this program because of problems we had with the SRAM II itself.

Mr. DICKS. So SRAM II is back on track?

Mr. WELCH. Yes

The motor problems, we believe, are resolved, so now we are working a lead time away in order to get the nuclear certification accomplished on the airplane itself and we need to begin to begin to purchase this fiscal year in order to be able to do the nuclear certification on production hardware installs on the airplane itself.

### ALQ-161A CORE PROGRAM

Mr. DICKS. Please give the Committee the current status on the ALQ-161A core program, including test results.

Mr. WELCH. We continue to be optimistic with respect to the ALQ-161A core, and we have completed a successful critical design review and, in fact, believe we have had people over here that reviewed the details of that.

We believe that we are basically on schedule as far as the core part of the program is concerned.

Mr. DICKS. What——

Mr. WELCH. You may be referring to a more recent letter that we sent the Committee on tail warning function.

### B-1B MISSILE WARNING RECEIVER

Mr. DICKS. You are correct, the Committee was advised late last week that a new problem has cropped up in the defensive avionics of the B-1B bomber. This problem involves the missile warning receiver, and although it is not related to the ALQ-161A core program, it is manufactured by the same company, Eaton's AIL Division.

Please explain the nature of the problem, its operational impact, why it wasn't discovered until recently, how you plan to fix it, and how much it will cost.

General **Ferguson**. You are correct, sir, it is not part of the ALQ–161 system, although the same contractor happens to be involved with the system. We did our first operational tests over a land range and we had unanticipated results. Our previous testing had been done over water. We felt that we were able to extrapolate data from over water work to the land environment and it turned out that that was not correct. We found saturation in the receiver and the processor and that is due to the larger clutter levels over land rather than over water testing. At the present time, we are analyzing the data to try to determine exactly what the cause of the problem is and what fixes might be appropriate and that is going on at this time.

Mr. **Dicks**. It doesn't function over water?

General **Ferguson**. No. Our test results over water and at mid- and high altitudes were excellent.

The only problem that we experienced was when we went over land at low altitude.

Mr. **Dicks**. That is the primary mission of the bomber.

General **Ferguson**. That is why we wanted to alert you to the nature of the problem as soon as it occurred.

Mr. **Dicks**. Is this the threat of a missile coming after the bomber?

General **Ferguson**. Yes, from the stern quarter.

Mr. **Dicks**. That would probably be the most likely scenario, wouldn't it?

General **Ferguson**. Yes, sir.

Mr. **Welch**. The operational impact—I think the situation that is being caused is we are either getting no signal or we are getting a small signal. That is what we have to square away. In the meantime, the contractor has elected not to deliver so we have that put in place to get fixed. We hope we can fix this by complete flight tests by October 1990, which was our original schedule.

We believe that we understand that the phenomena is. If we are correct, we would have to change out some cards, but until we can confirm what we believe is the problem, I would not want to tell you we have a fix.

Mr. **Dicks**. When you say cards, are you talking about software?

Mr. **Welch**. No, sir; circuit cards.

### ECM PODS

Mr. **Dicks**. Last year the Air Force held a competition between the ECM pods. It had generally been expected that both pod producers would receive annual split buys. However, the Air Force awarded the entire contract to one manufacturer.

Please explain the rationale behind the decision to award the entire contract to one producer.

Mr. **Welch**. People expected that this would be a split award. The way the RFP was structured, we could award to one contractor if it was to the benefit of the government recognizing that it was a limited buy of 500 pods.

We found that on the ALQ-184 pod which was the wing pod, we bought them for $.880 million, $880,000 per pod, whereas the competing pod was $1.17 million, and, in fact, we would have had to facilitize two contractors to stay in that game and with the limited number, we believe the best for the government was to go with a single contractor.

Mr. DICKS. The ALQ-184 system was part of a temporary solution to address jamming needs until the internal system, the ASPJ, was produced in large numbers.

Since the Air Force has dropped out of the ASPJ system in favor of a new classified program, why is it necessary to continue with the interim solution?

Mr. WELCH. We need to recognize that what the TAC need was about 1,500 of what they call quality pod. So we have a shortage in the inventory right now. The ASPJ program got to a situation where it was not affordable for us. We are extending that interim period while we finish up the evaluation on what may be an alternative, but even if that alternative were selected, it would be some number of years before it could come into the inventory.

Mr. DICKS. The winning pods, the ALQ-184, has been the target of some criticism from the Defense Operational Test and Evaluation Office.

Please respond item by item to the following concerns raised by DOT&E in the fiscal year 1989 annual report ———.

General FERGUSON. I guess we have——

Mr. DICKS. Sounds like a rather serious problem.

[CLERK'S NOTE.—Classified discussion removed.]

Mr. DICKS. The ALQ-184 did not meet the reliability requirements identified in the Statement-of-Need. The system is rated as potentially suitable. How long is it going to take to get this where it does meet your Statement-of-Need? Can you tell us about that and what are you trying to do to correct the deficiencies?

General FERGUSON. In that particular Statement-of-Need the definition of suitability or reliability, was not well stated. It was vague, as a matter of fact.

We now have established Mean-Time-Between-Failure requirements that have been actually Tactical Air Command statements and we are meeting or exceeding those at the present time.

Mr. WELCH. I would comment, Mr. Dicks, that one of the differences also between the ALQ-184 and the 131 in the competition was that the warranties with respect to mean-time repair and mean-time-between-failure were significantly better than they were with the 131 and that it has been a difficult discussion with the DOT&E people.

I would have to tell you that I believe they measured the system against what they thought the need should be vice what the written need was, and in fact we resolved that discussion by having the TAC commander come up and sit down and go over the needs point by point.

So it is the ECM cat-and-mouse game to a degree, always reaching out, by the time you have got something in production to a new technique.

We take these as the best standard pods we can get and then we step on to the next system over a period of time. If you wait in the test for all the threats we know about today, you wouldn't ever deliver anything.

Mr. DICKS. What planes would these pods be on?

Mr. WELCH. Fundamentally the F-16, but they go on other aircraft also.

### IR COUNTERMEASURES

Mr. DICKS. What is the current infrared counter-measure capability (missile warning system) of active and reserve component airlift and special operations forces?

General FERGUSON. Frankly there is no infrared countermeasures capability presently in the Guard or in the Reserve forces. That would be the best way for me to summarize it.

In the active force there is not much capability either, I would say virtually none. ———.

Mr. DICKS. What is the current and expected threat? Is there anything else?

General FERGUSON. No, that is pretty well the threat that we are concerned about.

Mr. DICKS. It is correct that the Air Force uses two systems to detect infrared threats for airlift and SOF forces, the AAR-44 and AAR-47?

General FERGUSON. Yes, sir, that is correct. The AAR-44s are being used on our special OPS C-141s, the low-level aircraft, and the 47s are primarily used on the MH-53 helicopter.

Mr. DICKS. Address the relative strengths and weaknesses—in terms of cost, reliability and technical performance—of the two systems and indicate why the Air Force does not use one common system.

General FERGUSON. Well, it might be best to describe the two systems if you evaluate them from a performance point of view against what we believe our requirement is as to either system being able to satisfy the requirement.

The 47 is a newer system and therefore it has the benefit of technology that allows it to be purchased for lower cost, and also because it has basically no moving parts, solid-state-type technology, we think it will have much lower operating costs as far as life-cycle costs are concerned.

So you would say that they can equally satisfy the performance requirement, because the 47 is newer, it has advantages both in acquisition and life-cycle costs. In the future, I think it is to be determined as to perhaps the best acquisition strategy is just to go to a common system.

Our plan now would be I think to take that one step at a time, the major buys for MAC fixed-wing aircraft for several years out into the future, and we would just use standard acquisition procedures I would believe, selecting the system that gave us best value.

Mr. DICKS. Do the newer systems like the 47 meet the threat? Are they capable of dealing with the threat?

General FERGUSON. Yes. There have been several looks at that and with the operator involved, with MAC involved, and it is their opinion that in fact either system will satisfy their requirement.

Mr. DICKS. Why are we not then moving more aggressively or are we going to try and equip all the aircraft with this? Is it affordability?

General FERGUSON. It is an affordability issue at the present time and the plans are to begin to consider equipping the MAC Force but those plans would probably not initiate for another several years.

Mr. DICKS. How many years?

General FERGUSON. It is probably not going to be before 1993.

Mr. DICKS. It is again like we talked about the pods before, there are several bands in the IR and assuming that the threat goes along the routes we have with stinger and stinger post and stinger improved, if we move into other bands, we don't have capabilities against that.

The AAR-47 would not defeat our better missiles and the idea of trying to stay——

Mr. DICKS. You are working on a new system that would meet the threat?

Mr. WELCH. Yes, sir. There are several that are working but they are strictly in the R&D phase. We do not have one that we can select. It is a terminal area threat. You try to stay out of that threat envelope.

If we begin to go into areas where we could not protect the perimeters like South America, we become concerned. So we are putting the AAR-47s on as the best we have today and and giving priority to the SOF airplanes, particularly those going to South America.

General FERGUSON. But those are limited purchases.

## C-17 DEFENSIVE SYSTEMS

Mr. DICKS. What are you going to do with the C-17?

General FERGUSON. There is a program that the C-17 participates in which is an integrated defensive system. The C-17 study is just being completed now. The C-17 capabilities under the airframe are a very good protection. The idea that it can circle within the perimeter of an airport and come to a short landing is probably the strongest thing it has going for it.

In fact, we have budgeted for an integrated defensive system to go into the C-17 I believe aircraft No. 106. So it is pretty far downstream.

Mr. DICKS. One-hundred and six out of 120 and then you go back and retrofit.

General FERGUSON. We probably would, yes, sir.

Mr. WELCH. You have to keep in mind we don't know how to do some of these things. It is not that we are reluctant to fund it. It is the technique.

Mr. DICKS. We will ask the rest of those questions for the record.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

*Question.* Is the Air Force conducting a review to determine which missile warning system is optimal for airlift and SOF aircraft?

Answer. AFECO has performed numerous studies to analyze two systems (AAR-44 and AAR-47) and the findings are classified.

*Question.* The Committee understands that on September 28, 1989 the Air Force Reserve obligated nearly $15 million for 132 AAR-47 systems. Fiscal year 1987 funds were used, which would have expired two days later.

Were all applicable procedures, rules and regulations followed in this procurement action?

[Clerk's note.—The answer was provided for the committee's files.]

*Question.* What were the preliminary findings of the review?

Answer. The end product of the AFECO analysis is that both the AAR-44 and AAR-47 meet MAC requirements.

*Question.* Have final recommendations been made yet?

Answer. No. The actual system to be used for the MAC Airlift Defensive System (ADS) components will be selected by Air Force Systems Command (AFSC) as part of the standard acquisition process.

*Question.* Has a decision been made as to which missile warning system might be carried on the C-17?

Answer. There is at this time no decision for which defensive system will be deployed on the C-17. It is still being examined. The C-17 is part of the Airlift Defensive System (ADS) program and will be provided, for commonality purposes, with the same system as for other MAC airlift aircraft.

[Clerk's note.—End of questions submitted for the record.]

## ALR-56M RADAR WARNING RECEIVER

Mr. Dicks. Let's go to the ALR-56M radar warning receiver. The ALR-56M warning receiver is planned to be the Air Force's standard RWR for F-16 C/D aircraft. The value of the procurement is expected to be about $1 billion.

As a result of revelations made during the"Ill-Wind" investigations, a bid protest was made to the General Accounting Office. In its initial finding in May 1989 and again in September 1989, after a formal Air Force rebuttal, the GAO: (1) found that the integrity of the competitive procurement process had been undermined; (2) sustained Litton's protest; and (3) recommended termination of the Loral contract and reimbursement to Litton for expenses.

Why didn't the Air Force terminate the original contract as recommended by the GAO?

Mr. Welch. Loral entered into a plea agreement with the Department of Justice which resolved its criminal and civil liability for the conduct at issue in the protest, and agreed to the imposition by the Air Force of significant contractual and administrative remedies. This included removal of all possibilities of profit on the basic contract and option 1, lots 1 and 2, as well as deletion of option 3 from the basic contract which was estimated at 45 percent of the total contract most probable production quantity.

The GAO never did say that the selection was improper. They were concerned about the integrity of the process. Once the——

Mr. Dicks. So the GAO is concerned about that, but the Air Force isn't?

Mr. **Welch**. No, sir. The Air Force is equally concerned about the protection of the integrity of the process. However other factors, including significant costs, schedule and operational impacts could not be ignored. Also, I have to remind the Committee that the Air Force was not privy to the data with respect to that case because it was under court seal. So when we made our selection et cetera, and even when we appealed to the GAO, we still were not privy to the evidence of the case.

After almost a year, the Department of Justice and Loral worked out a settlement. We have informed the GAO of that settlement activity and addressed the protection of the integrity of the process, and we have not heard from them since that time.

Mr. **Dicks**. Does the Air Force have information to support its estimates of excessive cost and delay to the program if it terminated the contract?

Mr. **Welch**. We do. We did have a careful study.

Mr. **Dicks** Supply that.

[The information follows:]

Prior to its decision to participate in an overall settlement executed on December 8, 1989, which included the Department of Justice and Loral Corporation, the Air Force analyzed cost, schedule and operational impacts, addressing both termination and no termination alternatives. While no formal study was published, the results of the analysis are provided below.

The cost impact estimate of $300–$400 million is based on several elements. First, the cost experience from the Advanced Radar Warning Receiver (ARWR) qualification program, conducted over a three to four year period for Loral and Litton, which would have to be repeated with other contractors, was estimated at $200 million. Second, the cost to acquire almost 600 existing, earlier technology radar warning receivers that would not meet the mid-1990's threat in order to replace the planned ARWR being bought under the contract for the F-16 and RF-4C was estimated at $158 million. Third, the estimate includes $35 million to redesign certain hardware and software on F-16 and RF-4C aircraft to allow installation of a different receiver, which also includes costs associated with changes in support equipment and technical orders. Impacts to operations and support costs resulting from redirection to install an earlier technology radar warning receiver, such as base and depot maintenance expenses, condemnation spares and inventory management costs were also considered and estimated at $9 million.

The schedule impact of 3 to 4 years was based on the time lost since the original contract was awarded in December 1988 plus time to award and conduct qualification programs, conduct another source selection for production and finally, long lead procurement, production lead-time and aircraft contractor integration and test time.

Mr. **Dicks**. The GAO found that the damage to the integrity of the competitive procurement process outweighed the cost and delay to the program that would result from not terminating the contract. You explained the Air Force position on this conclusion.

As part of the plea-bargain settlement entered into in December 1989 between Loral and the U.S. District Attorney's Office, Loral continued as the first producer and technical support contractor for the second producer for the 56M system. Litton discontinued its protest to the GAO and received a sole-source contract from Loral from three of the five major assemblies in the 56M-RWR procurement.

How does a sole-source contract for a major share of the total buy to one company in the radar warning receiver industrial base preserve the integrity of the competitive procurement process?

Mr. **Welch**. Let me take those questions in two parts. The first one addressed itself to the integrity of the procurement process, the

Air Force concurs that the protection of the integrity of the process must come first, but it cannot be exclusive to the fact that we have to look at the costs incurred at the operational impacts and other things. That is our job.

Mr. DICKS. Was there a deal here?

Mr. WELCH. No, sir.

Mr. DICKS. All of a sudden Litton drops its protests and then gets a major subcontract from Loral. It doesn't take a rocket scientist to figure out what the implications of that might be.

Mr. WELCH. There were only two qualified biders, so you would expect that the person who was qualified to bid would be the first choice in terms of looking at people.

The second part is competition. The idea was to have two competent suppliers for each one of the boxes of the system. In fact, it was the winner's job to go make that deal. It was not part of the contract for them to conduct a source selection for a second source. In fact, that source was brought on early as part of the agreement with the Department of Justice, which also removed more than 45 percent of the quantity that would have been sole source in the first procurement.

If you go back and look at the history, it took over three years to qualify those two contractors to bid against each other. So the idea that someone could step in and be qualified in the short term, it is not unreasonable to expect only the two bidders. In fact, that was one of the driving costs of the situation.

If you had to go back and recompete, we would have had to award two completely new contracts, go through the DEM-VAL or laboratory evaluation again. There was every indication the same two contractors would have won again.

Mr. DICKS. How is this program doing? How are they performing?

Mr. WELCH. The contractor is performing fine to date.

Mr. DICKS. Are there any technical problems with this?

Mr. WELCH. Not that we have found so far.

Mr. DICKS. Any cost problems?

Mr. WELCH. The basic contract and its options are fixed price and locked in. We probably will get a better deal in the long run because we will start to compete one full lot earlier.

I need to point out that there is currently an ongoing competition for the more complex and costly boxes. Specifically, I believe there are five boxes in the system and at least two are out for full and open competition.

Mr. DICKS. Has the Air Force performed a should-cost estimate to assure itself that it has not been subjected to a "buy-in" that would result in higher unit costs in the future?

Mr. WELCH. No, sir. The source selection, the dollars associated with the quantity and work content were a part of the source selection, and secondly the contract is fixed price. There is not an opportunity to do that.

Mr. DICKS. Answer the rest of the questions on this subject for the record.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

*Question.* The RFP for the remaining two assemblies in the 56M–RWR procurement limits the second source procurement to 35 percent of the fiscal year 1991, Lot III procurement, and requires the bidder to commit to the prime that they will never compete with the prime for 56M–RWR modifications or system integration, other than what the prime offers to bid. What is the current status of the remaining second source activity? When is a decision expected to be made?

Answer. A source selection, conducted by Loral Corporation, concluded on 31 May 90, with the competitive selection of Litton Applied Technology Division, over three other offerors, as the second source for the remaining two superheterodyne Line Replaceable Units (LRUs).

*Question.* The Government has bought and paid for the 56M–RWR design. Why didn't the Air Force assume responsibility for the second source selection and conduct competition on a systems basis for the second source?

Answer. The Air Force never contemplated conducting (sponsoring) the second source selection, which is part of the fiscal year 1989–1991 ARWR requirement for which Loral is currently on contract.

The Air Force does not possess the know-how and skills necessary to teach a second source how to manufacture an AN/ALR–56M. Loral is required by the contract to qualify another source for each ARWR LRU and to warrant the qualification units produced and delivered in Lot III.

*Question.* What delay and expense would be incurred if the Air Force rescinded actions taken to date under the second source selection, and conducted a full and open competition at the systems level for a second source procurement of all five of the assemblies in the procurement?

Answer. The Air Force has not conducted additional analyses of schedule and cost impacts of terminating the Loral contract and conducting a full and open competition, since the overall settlement was concluded in December 1989. However, in its previous analysis conducted in October 1989, the Air Force estimated that a decision to terminate and conduct a full and open competition at the systems level would result in program schedule delays of three to four years and cost impacts of $300–$400 million.

[CLERK'S NOTE.—End of questions submitted for the record.]

## COMMON SUPPORT EQUIPMENT

Mr. DICKS. The budget request includes $386.6 million for common support equipment, an increase of $145.1 million, or 60 percent, above the 1990 amount.

In a year of declining defense budgets, why does the Air Force consider common support equipment a high enough priority to warrant a 60 percent increase?

General FERGUSON. I would have to begin by saying that this is an indispensable part of making our Air Force work in the support equipment area. For several years now we have only been funding this at 55 percent of what our requirements are for those types of materials. As a matter of fact, in 1990 we only funded 50 percent of our requirement. In 1991, our proposal is only to fund 60 percent of what we judge our requirement to be.

Beyond just saying that, this is absolutely indispensable to the operational Air Force. I don't think I can offer any other explanation. I would say that we have——

Mr. DICKS. For the record, provide details on the $6.421 million request for simulators.

[The information follows:]

The $6.421 million requested in fiscal year 1991 will be used in three separate projects. The first project is the B-1B which will use $1.0 million to complete delivery of simulator systems. The second project is the C-141 which will use $2.421 million to fund initial production of new training equipment (computer based training equipment and simulator enhancements) for Military Airlift Command's Contracted Aircrew Training System. The final project is the T-37/T-38 Euro-NATO Joint Pilot Training Program. This project will use $3.0 million to support USAF portion of costs (50%) for replacement of aircrew procedural trainers. Remaining funds come from Euro-NATO using countries.

Mr. DICKS. Does this provide the simulators for all Air Force programs or just for common support?

General FERGUSON. It is only for the common support.

### INDUSTRIAL RESPONSIVENESS

Mr. DICKS. Another activity which experiences significant budget growth in 1991 is that of industrial responsiveness, which increases by 85 percent, to $45.3 million.

Detail for the record the reasons for the increase, especially in the areas of environmental protection and industrial modernization incentive programs. What are we doing with industrial responsiveness?

General FERGUSON. Well, the request is for $45.3 million. The largest fraction of this goes to environmental work and a good illustration of that are the kinds of things that we are facing across the country to be in compliance with State laws.

One of the illustrations is Air Force Plant 6, which is in Marietta, Georgia, where because of their environmental laws, in order to be in compliance for discharge of waste water, we are going to have to spend $6.4 million in order to bring that plant up to standards. This is happening elsewhere across the country.

Mr. DICKS. That is something you have to do. We can't have the Air Force and the other Services not complying with these local laws. It just doesn't work.

General FERGUSON. This particular request is critical to that.

The other area is industrial modernization incentive programs. That is where we bascially incentivize our contractors to make their plants more productive from a manufacturing point of view.

We encourage cost sharing by the contractors with cost recovery in the future and that has also been extremely successful. Investment to date is about $550 million, and we judge probably about $4 billion worth of savings will be recouped in the out years to the Department.

### C-20 AIRCRAFT

Mr. **Dicks**. Last year's Appropriations Act included approximately $50 million for two C-20 aircraft for the National Guard. What is the status of this effort? When do you expect to be on contract?

Mr. **Welch**. We are in the process of preparing a package for solicitation to industry at this time.

Mr. **Dicks**. Is it the intention of the Air Force to purchase new aircraft off the production line rather than used aircraft?

Mr. **Welch**. New aircraft.

Mr. **Dicks**. You are going to buy new aircraft?

Mr. **Welch**. Yes.

Mr. **Dicks**. Is that a good decision?

Mr. **Welch**. The used aircraft that could be available today are not compliant with noise standards and other things.

### ADVANCED TACTICAL FIGHTER

Mr. **Dicks**. Let me go back on two things. I would like to make sure I understand the answers.

On the ATF we have put on a two-year delay; is that correct?

Mr. **Welch**. Yes, sir. Two-year delay in the span of FSD. We intend to down select on schedule.

Mr. **Dicks**. You are going to down select on schedule with a two-year delay?

Mr. **Welch**. Yes, sir.

Mr. **Dicks**. One thing that came up was what does that mean to the F-15 program; anything? Are you staying with your decision? Are we ending the F-15 program?

General **Ferguson**. In 1991. I think our——

Mr. **Dicks**. General Welch said somthing that was in the trade press that suggested we might have to reconsider our decision on the F-15 in light of what has happened on the ATF.

Can you explain to us what that might mean?

General **Ferguson**. I think where we are going to protect the industrial base from the point of view of maintaining a fighter in production until the ATF is available is going to be in the F-16 line.

Mr. **Dicks**. What would be the gap in production? Under the revised schedule, how many years' gap in production will be experienced if the F-15E is terminated after 1991?

General **Ferguson**. That would be about 5 years. However, there would not be a gap between the last F-16 delivered and the first ATF.

Mr. **Welch**. I think in fairness to the first question also, we are not presently looking at continuing the F-15E. I understand what General Welch said at the time. That was certainly one of the options we were looking at.

Mr. **Dicks**. But in light of the Secretary's decision that no longer is. Are there any further questions? We will have other questions for the record. The Committee is adjourned. Thank you, gentlemen.

[**Clerk's note**.—Questions submitted by Mr. Hefner and the answers thereto follow:]

### ECONOMIC PROCUREMENT

*Question.* Welcome, Mr. Secretary, it is a pleasure to have you with us again today. You listed the priorities the department used to develop the aircraft procurement budget in your statement. The first item on your list was an efficient acquisition plan. If I'm not mistaken the B-12, the F-15, the F-16, and the C-17 are all requested at last years level or lower, is that correct?

Are any of these programs being procured at the minimum economic rate?

[CLERK'S NOTE.—The answers were provided for the committee's files.]

*Question.* What is the minimum economic rate for the F-15E and the F-16? What is the most economnic rate we could acquire these aircraft and get the most for our money?

Answer. The minimum economic rate for the F-15E is 36, which is also the fiscal year 1991 requested quantity. the most economic production rate for the F-15E is 48 per year, but since fiscal year 1991 is the last buy a higher rate is not applicable. The F-16's minimum economic rate is 108 per year, and the most economic rate is 150 per year.

### AIRBORNE SELF-PROTECTION JAMMER

*Question.* In past budgets, the Air Force has included procurement money in the F-16 line for ASPJ. As I understand it that money was to provision the aircraft to be ready to receive ASPJ when it is ready. Is that correct? How many F-16's are now pre-wired to accept ASPJ?

Answer. A portion of the Airborne Self-Protection Jammer (ASPJ) money in the F-16 line was used to provision the F-16C aircraft to receive the system. The remaining funds were used to purchase ASPJ systems for production verification and under the first Low Rate Initial Production contract as well as other support requirements. There are currently 181 Block 40 F-16s with 95-98 percent of the pre-wiring installed.

*Question.* How much have we spent to provision these aircraft so far?

Answer. The amount spent so far to provision, with pre-wiring, the F-16C for the Airborne Self-Protection Jammer is approximately $2.2 million (as of May 31, 1990). This investment will not be lost if installation of an internal system becomes affordable. The F-16C aircraft will continue to be pre-wired since it is more cost effective to do so rather than redesign and engineer the wiring configuration on the aircraft.

*Question* When Secretary Rice was here he indicated that the Air Force pulled out of ASPJ for simple financial reasons. What is the Air Force plan to provide self-protection for these aircraft and pilots. (If they have an option), What will it cost? When will it be fielded? Will the pre-wiring work already bought be wasted? Will this be an internal system? If not, will the aircraft's operational capabilities be degraded? If so, how much?

Answer. The Air Force's back-up solution for F-16C self-protection since the termination of our Airborne Self-Protection Jammer (ASPJ) program is electronic countermeasures pods. These pods, the ALQ–131 Block II and the ALQ–184, will be used in conjunction with radar warning receivers and chaff/flares dispensers to provide self-protection for the F–16 aircraft. The pod program is on-going and not a new start. Tactical Air Command, taking the cancellation of ASPJ and operational need into consideration, will allocate these jamming pods. The cost of each ALQ–184, which is the only pod still being procured, is approximately $.880 million. Pods do not require any additional aircraft wiring. The pre-wiring work already completed on the F–16 will not be lost if an internal jammer becomes affordable ———.

### COMMON SUPPORT EQUIPMENT

*Question.* What percentage of the total requirement is funded in the 1990 program and 1991 request?

*Answer.* In 1990, 50 percent of the total common support equipment requirement is funded. The 1991 budget request is for 60 percent of the total common support equipment requirement.

*Question.* Is the Air Force looking at product improvements to common support equipment if they are more cost effective than new equipment?

Answer. Yes. Air Force Logistics Command and Air Force Systems Command jointly chair an Aircraft Ground Support Equipment Working Group that meets at least three times a year to sponsor and follow-up on support equipment product improvement initiatives. The objective of their initiatives is to improve the cost-effectiveness, readiness and safety of Air Force support equipment.

Typical of the type of support equipment improvement initiatives that the group has taken on are the aircraft tow bar and gasoline-engine conversion projects. The working group was asked to review the proposed procurement of a universal tow bar. They developed a cost effective modification to existing tow bars as an alternative to buying the new towbars at $10,000 per copy. When the Air Force decided, for logistical, financial and environmental reasons, to change all the engines in its support equipment from gasoline to diesel, the working group devised a method of making the conversion through use of a modification kit rather than purchasing new support equipment end items.

The process that resulted in these examples is firmly ingrained in the way the Air Force reviews its acquisitions and carries out its daily business.

### JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM

*Question.* The 1989 Annual Report of the Director of Operational Test and Evaluation raises several issues concerning the Joint Tactical Information Distribution System. Please address the following issues indicating how serious the Air Force views the situation and what corrective actions are being taken.

Answer. The Air Force is and has been concerned with the terminal and procedural deficiencies stemming from the 1987 IOT&E for the JTIDS Class 2 terminals as highlighted by the 1989 DOT&E Report. In light of these deficiencies, an Initial Operational Assessment (IOA) was conducted to support the 7 September 1989 Defense Acquisition Board (DAB) and it was determined that the program was progressing satisfactorily. Additionally, the terminal was involved in a rigorous reliability verification testing program and design changes have been made to correct the above deficiencies. These corrections will be tested through June 1993 in support of a full rate DAB scheduled for late 1993.

Issue a. IOT&E/IOA software supportability was rated unsatisfactory, and software maturity was not rated.

The Air Force no longer considers software supportability an issue. The 1987 IOT&E rated this area marginal and the 1989 IOA verified that software supportability had improved. Software maturity was not rated because little statistically significant test data could be generated. Influencing the 1987 test results was the limited availability of software documentation. Corrective actions: Quality of supporting documentation has been increased. An Engineering Change Proposal (ECP) (FQT-5A&B) has been put on contract to correct all known and unresolved issues.

Issue b. Loss of connectivity due to jamming. The Air Force views this concern as important.

The previous tests were based on an early user concept developed for planning purposes only (100% connectivity in all jamming environments). TAF has since updated their connectivity requirement as documented in the 16 November 1989 TAF Statement Of Operational Requirements Document (SORD) which revises the deployment concept. (Present TAC connectivity requires 50% of the messages to be delivered with 90% confidence under jamming). Air Force feels this connectivity requirement can be met in fiscal year 1992.

Issue c. Unsatisfactory performance in multiservice DCA (defensive counter-air) operations.

The Air Force does not feel that this is a current problem. The 1987 IOT&E did not have established net management procedures or a joint concept of operations. The Army was included in the IOT&E late, therefore, their personnel were unfamiliar with the JTIDS equipment and the equipment used in the system was not properly integrated. Corrective actions: This issue will be revisited in the following tests:

Multi-Service Operational Test I—Oct. 1991 with Navy.

Multi-Service Operational Test II— Apr. 1992 with Navy.

Multi-Service Operational Test III—Early 1993 with Army.

Multi-Service Operational Test IV—Fiscal years 1994-1995 with all Services.

Issue d. Excessive ground-to-ground propagation losses.

The Air Force does not see this issue as important. The problem was the result of improper siting criteria and set-up by Army personnel (see the above question). Corrective actions: The Army will revisit this issue during their FAADC2 IOT&E scheduled for fiscal year 1992. They will test in both arid and dense foliage environments.

Issue e. Unsatisfactory terminal suitability.

The Air Force views this issue as very serious. The rating was due to poor Built-In-Test (BIT) function and terminal reliability. The Air Force has invested $20 million in several efforts to increase reliability and improve BIT. The 1989 IOA, which supported the Milestone IIIA DAB, showed that the BIT function had improved considerably. The Air Force ran a Reliability Verification Test in fiscal year 1988 (cost ~$5.0 million) which demonstrated a 316.5 hour Mean-Time-Between-Failure (MTBF) estimate in the lab. The Air Force contracted in December 1989 for the Joint Services-approved Reliability Growth Plan required by the DAB which will run through fiscal year 1993 and will provide the required specification goal MTBF of 500 hours in the lab (cost $14.3 million).

*Question.* The JTIDS acquisition strategy calls for a leader/follower situation. In view of program stretch-outs and reduced quantities, is the Air Force reconsidering this strategy?

Answer. The JTIDS approved acquisition strategy calls for dual prime production contracts. The development phase required the leader/follower concept so that two qualified contractors could compete in the production phase. The requirement for two contractor competition is continuously reviewed. An extensive review was conducted before the 7 September 1989 Defense Acquisition Board (DAB). Current strategy is valid as long as production quantities do not change significantly (an estimated decrease of 300 terminals in the total current program).

*Question.* Is it accurate to say that each producer could exceed the quantities envisioned in the program working one 8 hour shift 5 days a week?

Answer. Although this may be an accurate statement to make in the early stages of the ramp-up to full production in 1994, with the quantities briefed for the out years at the September 1989 Defense Acquisition Board (DAB), this statement will no longer be accurate. It was determined that at least a $50 million savings could be realized for a competitive production. The primary limiting factor in the production of JTIDS Class 2/24 terminals will be the high level of effort required for "burn-in" and test of each outgoing terminal. As production quantities increase, more than one shift will be required.

*Question.* How much has been invested to date in the second source and what will be the total cost to facilitate the second source?

Answer. The development of the JTIDS Class 2/2H terminals was accomplished by two firm fixed-price contracts. The early development contract was valued at $104 million and the current development contract (which includes Navy Class 2/2H terminals and Army Class 2M terminals) is valued at slightly over $400 million. Both contracts were awarded to Plessey with the follower being Rockwell-Collins. It is estimated by the Program Office that approximately one third of the contracted amounts went to the second source. Even though we do not meet the precise definition of facilitization as provided in the Federal Acquisition Regulation. We are, however, providing special test equipment, special tooling, engineering, and nonrecurring start-up costs to support rate production for JTIDS terminals. The contractors proposed costs for these areas are $23.4 million for Plessey and $10.7 million for Rockwell-Collins.

*Question.* Based on the lessening of tensions worldwide, has the Air Force changed its view on the need for or priority of JTIDS?

Answer. Although fewer JTIDS terminals are needed, the requirement for jam resistant tactical communications still remains.

U.S. security responsibilities still exist worldwide, as does the need for jam resistant communications networks to support flexible and responsive command and control.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner. Questions submitted by Mr. Young and the answers thereto follow:]

### C-17 PROGRAM

*Question.* The recently completed Major Aircraft Review reduced the C-17 program from 210 to 120 aircraft saving $12.6 billion over the life of the program. The current plan indicates a decreased in production from four each in fiscal year 1989 and fiscal year 1990 to two in fiscal year 1991 and then increase to six fiscal year 1992, a rather large jump. Some have suggested that the rationale for the decline from six to two is to allow for additional flight testing. What is the status of the flight testing and does it have an impact on the decision to go to two aircraft in fiscal year 1991?

Answer. In his testimony before the House and Senate Armed Services Committees on April 26, 1990, the Secretary of Defense indicated that reduced concurrency was a factor in his decision to recommend a reduction in FY91 from six to two C-17 aircraft. The flight test program will be a combined DT&E/IOT&E test program. Aircraft T-1 and P-1 through P-4 will be the aircraft dedicated for all flight testing. All of these aircraft will be delivered with sufficient lead time to complete all required flight testing. DT&E/IOT&E will be completed in June 1993. The flight test program is on schedule.

*Question.* What will be the impact on the prime and vendor production base of a reduction from six to two?

[CLERK'S NOTE.—The answer was provided for the Committee's files.]

*Question.* Wouldn't production efficiency be better if the fiscal year 1991 production were stabilized at four rather than two?

Answer. The Secretary of Defense C-17 MAR decision is based on issues beyond production efficiency. Clearly affordability, concurrency, strategy, and mission need influenced his program restructure decision. However, in isolation, production efficiency would have been better at four C-17s in fiscal year 1991.

*Question.* What is the cost increase you would have to absorb by dropping to two now and then going back to six?

[CLERK'S NOTE.—The answer was provided for the Committee's files. End of questions submitted by Mr. Young. Questions submitted for the record and the answers thereto follow:]

### B-2 PROGRAM

*Question.* Secretary Cheney's Major Aircraft Review reduced the planned total B-2 program from $75.4 billion for 132 aircraft to $61.1 billion for 75 aircraft. There seems to have been some reluctance on the part of the Air Force to discuss unit costs under the revised program. However, if one takes the revised total program cost of $61.1 billion and divides by 75, the result is a program unit acquisition cost of $814,666,000, isn't that correct?

*Question*. Backing out research and development and military construction costs the flyaway unit cost of the restructured program is approxiately $500 million, do you agree?

*Question*. How is the reduction of $1.37 billion in 1991 distributed among R&D, procurement, advance procurement and spares?

*Question*. In fiscal year 1990, $424.8 million was appropriated for B-2 advance procurement, assuming a buy of 5 aircraft in 1991. How much of that funding has been obligated, and how will you manage the funds based on new program profile?

[CLERK'S NOTE.—The answers to the above questions were provided for the Committee's files.]

*Question*. What does the new program assume about the priced options, which if broken, the Committee understands, may cost $2.8 billion?

Answer. The OSD Major Aircraft Review 75 aircraft procurement program protects the vendor fixed priced options. Failure to do so would result in an increased cost to the overall program.

## C-17 PROGRAM

*Question*. The program which probably received the greatest reduction, on a percentage basis, in the major aircraft review is the C-17. The total buy declined from 210 aircraft to 120. The 1991 request dropped from six aircraft to two. Previous information supplied to the Committee indicated (1) that the 66 million ton miles per day requirement was fiscally constrained, meaning the true requirement was even greater; and (2) the most demanding airlift scenario was not in Europe, but in Southwest Asia.

Does the Department of Defense intend to revise the 66 million ton mile per day goal based on changes in the world situation and results of the major aircraft review?

*Question*. Do you agree that under the 1991 budget as submitted, the procurement unit acquisition cost was approximately $200 million ($41.8 billion divided by 210 aircraft) and after the major aircraft review is approximately $250 million ($29.9 billion divided by 120 aircraft)?

*Question*. Last year the Congress reduced the C-17 program based on schedule slippage and technical difficulties. What is the current status and health of the program in terms of schedule and technical performance?

[CLERK'S NOTE.—The answers to the above questions were provided for the Committee's files.]

*Question*. How confident are you that first flight will occur within one year?

Answer. All activities are proceeding on time or ahead of schedule in support of a first flight date no later than June 1991. This date, previously scheduled for August 1990, was revised due to problems with the Mission Computer and Electronic Flight Control System development. Although further development and production delays are always possible to some extent, there is no indication of any further problems that would cause a delay in achieving first flight by June 1991.

## F-15E AIRCRAFT

*Question.* The Bush Budget Amendment submitted in April 1989 increased the 1991 request for the F-15E by $700 million for "increased cost of fiscal year 1991 aircraft, line shutdown, support and training equipment, and technical data." The total request for the program was revised to $1.992 billion. Why do you estimate you can do the same program this year for $1.7 billion?

Answer. It is not the same program. The $290 million in requirements was pushed out into fiscal year 1992 and fiscal year 1993 due to inability to obligate the funds in fiscal year 1991. Those requirements and their associated funding are now in fiscal year 1992 and fiscal year 1993.

*Question.* Are any activities planned last year deleted from this year's request?

Answer. Yes. $290 million in requirements for support equipment was deferred into fiscal years 1992-1993. Specifically, we delayed depot and intermediate support equipment buys to match expected obligation rates.

*Question.* What would be the net change in the F-15E program in 1991 if the line were to be kept open for another year? (Assume a rate of 30-36 aircraft in 1992.)

Answer. If 30 F-15Es were added in fiscal year 1992, an additional $88.4 million in fiscal year 1991 advanced buy funding would be required in fiscal year 1991. For 36 F-15Es, the figure would be $101 million. These figures apply the $29.7 million requested in fiscal year 1991 for production line shutdown inefficiencies toward the advanced buy requirement. If the long lead funding is not followed with the actual purchase of the aircraft in fiscal year 1992, the $29.7 million would still be required in fiscal year 1991.

*Question.* How much is included for the ALQ-135 internal jamming system in the F-15 line?

Answer. $142.5 million for fiscal year 1991.

*Question.* What is the status of this program (ALQ-135) in terms of cost, schedule, and performance?

Answer. The ALQ-135 development effort is on a fixed price contract, so the cost to the Air Force remains unchanged even though the contractor is in an overrun condition. Fielding of the jammer has slipped eight months due to software delays; however, recent flight tests demonstrate that the jammer is now performing well and ready to deploy. Installation will begin on June 1, 1990 in F-15Es.

*Question.* The self protection jammer intended for the F-16, the ASPJ system, has been abandoned by the Air Force in favor of a classified program. If the alternative is good enough for the F-16, why shouldn't it also be used on the F-15?

Answer. The Air Force's termination of its participation in ASPJ has had no impact on the F-15E self-protection capabilities. Air Force classified programs have been briefed to the appropriately cleared members and staff of the House Appropriations Committee. Discussion of any classified program in this forum would be inappropriate.

*Question.* Why does the 1991 budget include a request of $37.3 million for simulator engineering change orders?

Answer. To assure realistic training the simulators must accurately reflect the actual aircraft. Past and planned changes in the aircraft necessitate changes in the simulator. These engineering change proposal funds are required to keep the simulator up with aircraft changes.

### TANKER-TRANSPORT TRAINING SYSTEM

*Question.* A total of $185.2 million has been requested for the Tanker-Transport Training System (TTTS). This system has been designated as the T-1A Jayhawk, is that correct?

Answer. The proper designation is the T-1A Training System. The aircraft is designated the T-1A Jayhawk.

*Question.* It is the Committee's understanding that the contract entered into earlier this year will result in a total program cost considerably less than the $1.5 billion which had been envisioned for the 211 aircraft and training syllabus buy.

What do you now estimate the total will be and to what do you attribute the difference?

Answer. The total RDT&E and Production program is $1.1 billion. The difference was caused mainly by the following:

Original estimate based on historical cost data and the Business and Commercial Aviation 1989 Planning and Purchasing Handbook (aircraft prices for both large and small contenders). The aircraft price used for the estimate was the lowest price of the large aircraft.

Source selection resulted in a small aircraft being chosen and the competition drove an 18.1 percent savings per aircraft from the catalog price.

*Question.* The detail in the back up book depicts a program structured very differently from the contracted program. (For example, the back up book has procurement of the first aircraft in fiscal year 1989 for a fly away cost of $8.9 million. The contracted program has aircraft number one purchased in 1990 for approximately $40 million).

Explain the major reasons for the differences.

Answer. McDonnell Douglas Training Systems' (MDTS) proposal included all nonrecurring costs in the first aircraft price. The original analogous estimate was based on the assumption that nonrecurring costs would be spread over both fiscal year 1989 and fiscal year 1990 and 15 aircraft. In addition, the nonrecurring costs for MDTS were greater than the original estimate. Due to the way MDTS proposed the first aircraft (CLIN 1AA–$3.2 million for commercial aircraft, CLIN 1AB–$36.0 million for the nonrecurring effort and missionization) and the full funding requirement, it was decided during source selection to buy one aircraft in fiscal year 1989 (aircraft 2) and 14 aircraft in fiscal year 1990 (aircraft 1 and 3–15) in order to avoid a fiscal year 1989 unfunded requirement while still complying with the full funding requirement.

*Question.* The Committee further understands that the contracted program for 1991 leaves an excess of $22.6 million which is budgeted but not needed for T-1A requirements—even after allowing $20.5 million for engineering change orders, is that accurate?

Answer. Yes.

[CLERK'S NOTE.—End of questions submitted for the record.]

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